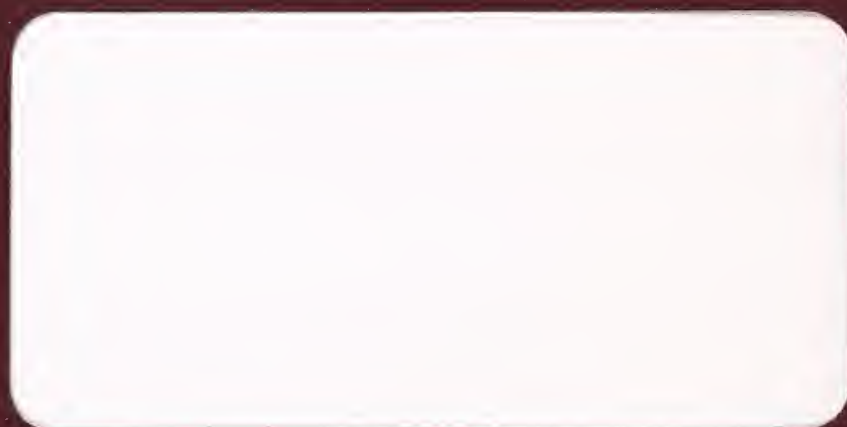# Information Services:

A Strategic Update

for

IBM Canada

INPUT

Information Services:

A Strategic Update

for

IBM Canada

Presented to: IBM Canada

   By: R. Dennis Wayson, Vice President
      and
      Douglas H. Tayler, Director-Research

      August 30, 1988

INFORMATION SERVICES
A STRATEGIC UPDATE

Topics

- About INPUT

- Information Services Forecast Methodology and Industry Structure

- Information Services Market—An Overview

- Systems Integration—Vendor Perspectives

- Systems Integration—User Perspectives

INPUT

ABOUT INPUT

Business Focus
- Planning Services for
  - Information Services Industry
  - Information Systems Executives

- Through
  - Syndicated Research
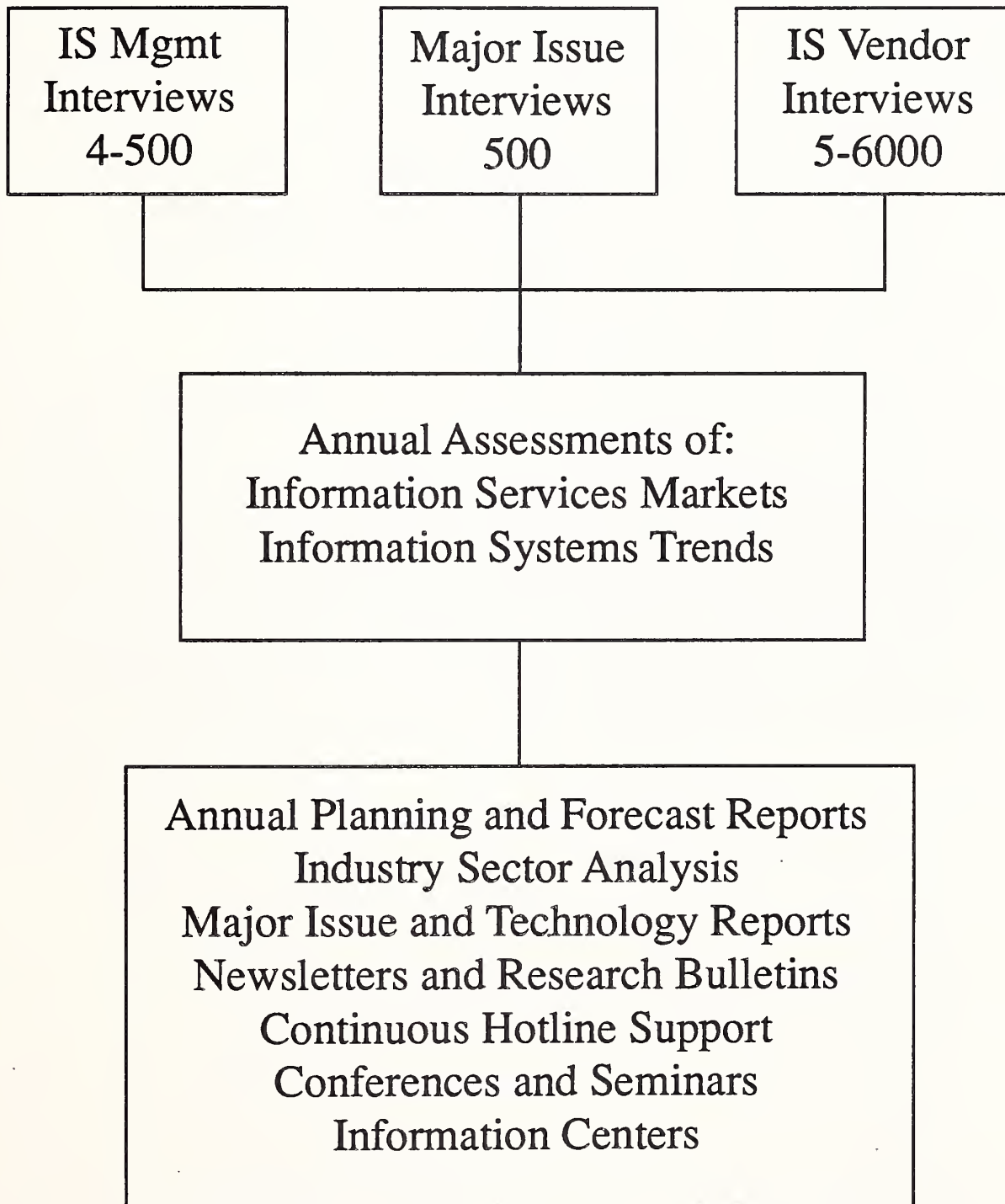 - Proprietary Research and Consulting

Business Structure
- Independent - founded in 1974

- Offices in
  - Mountain View, California
  - Washington, D.C.
  - New Jersey
  - London
  - Paris
  - Tokyo

Staff
- Staff of 100

- Professionals
  - Average Over 15 Years IS Experience
  - Balanced Between Vendor and User

INPUT

INPUT RESEARCH ACTIVITY

| IS Mgmt Interviews 4-500 | Major Issue Interviews 500 | IS Vendor Interviews 5-6000 |

Annual Assessments of:
Information Services Markets
Information Systems Trends

Annual Planning and Forecast Reports
Industry Sector Analysis
Major Issue and Technology Reports
Newsletters and Research Bulletins
Continuous Hotline Support
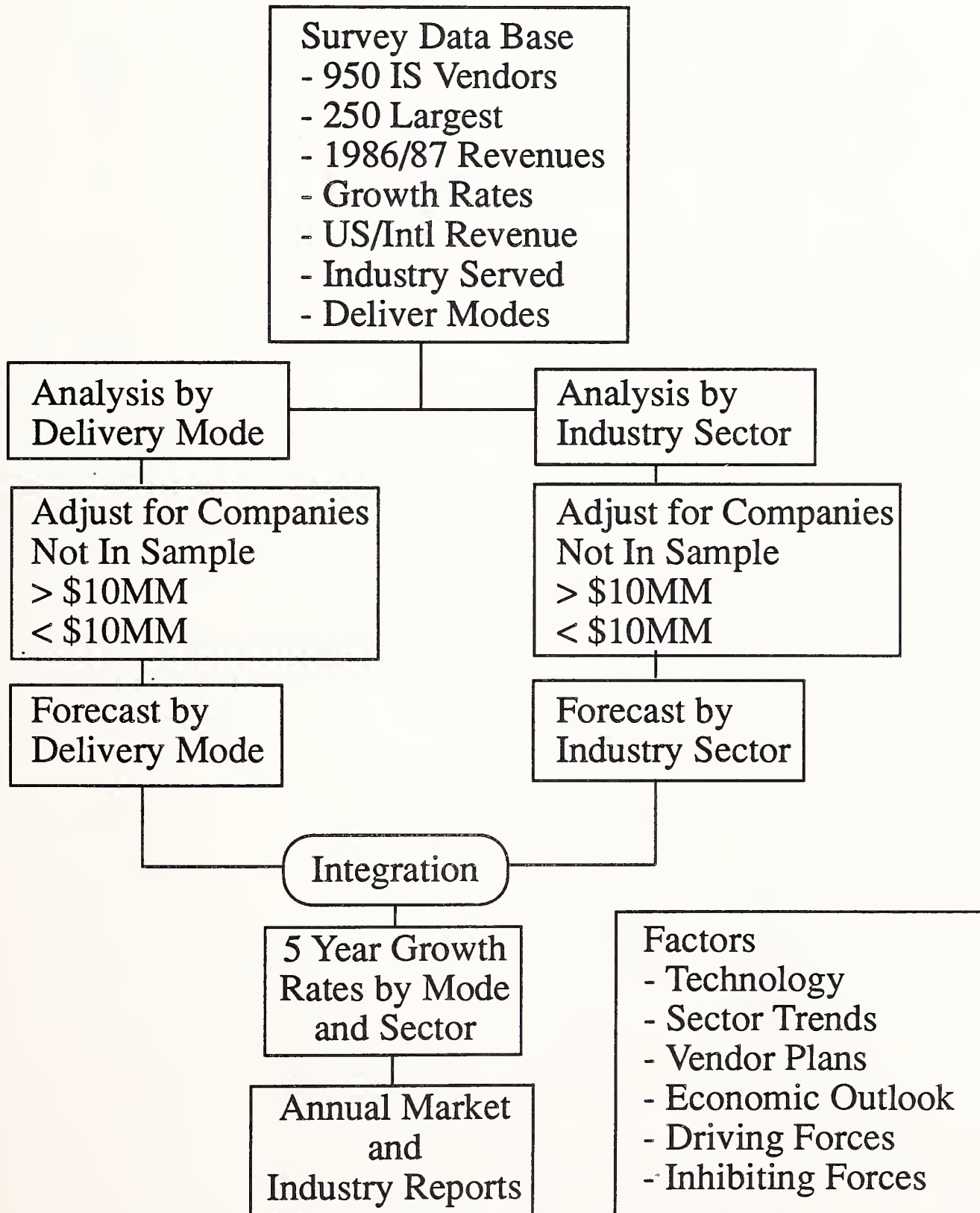Conferences and Seminars
Information Centers

INPUT RESEARCH SERVICES

- Syndicated Research
  - Market Analysis Program (MAP)
  - Market Analysis Program - Europe(SSPE)
  - Vendor Analysis Program (VAP)
  - Systems Integration Program (SIPS)
  - Federal Information Systems and Services
    Program (FISSP)
  - Customer Service Program (FCSP)
  - Customer Service Program - Europe (CSPE)
  - Information Systems Program (UISP)
  - Electronic Data Interchange Program (EDIS)
  - Integrated Communications Program (ICP)

- Proprietary Research and Consulting
  - Approximately One-Third of INPUT Business
  - Primarily Client Related
  - Research Driven Consulting
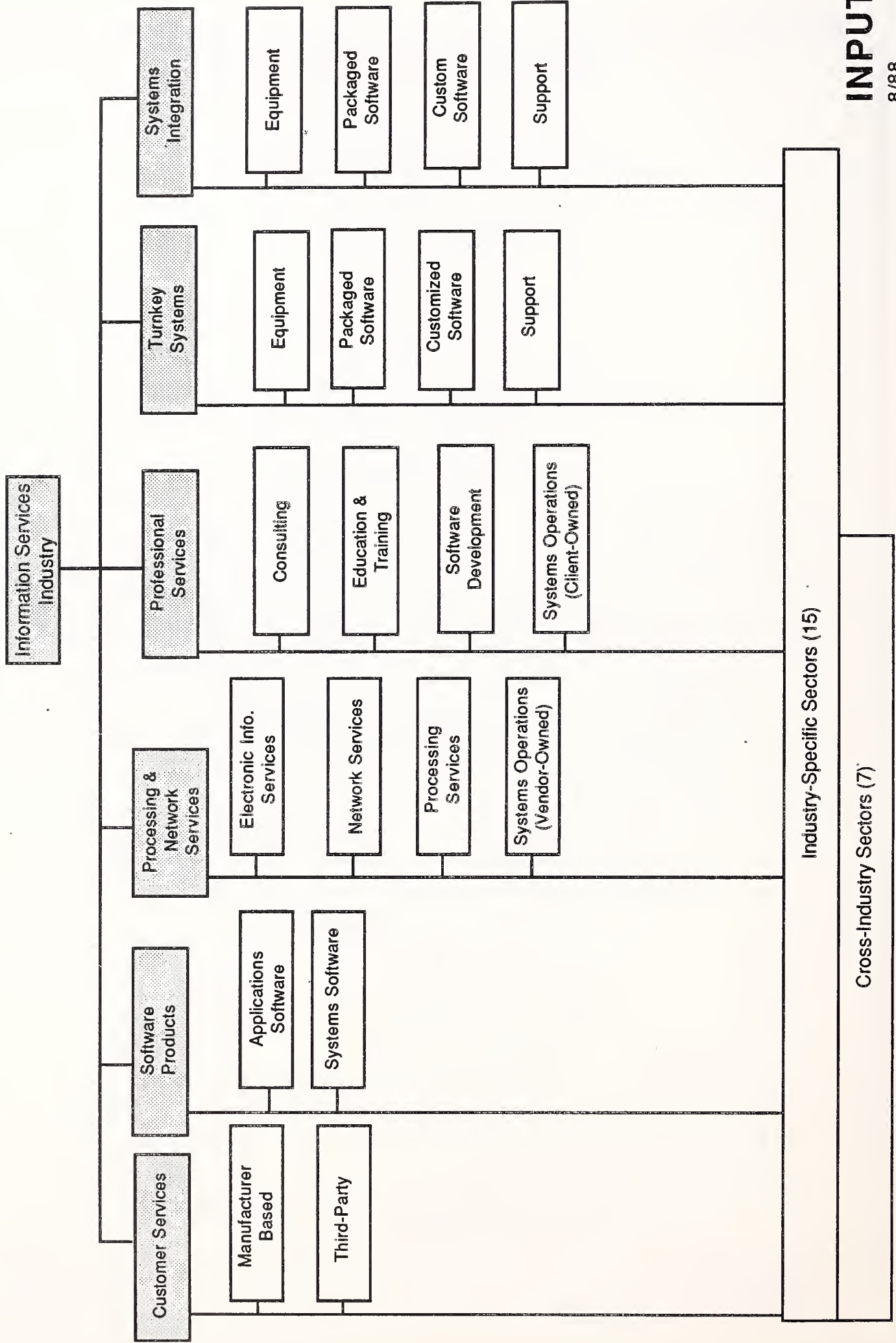 - Support Strategic and Tactical Decisions

INFORMATION SERVICES

Forecast Methodology

Survey Data Base
- 950 IS Vendors
- 250 Largest
- 1986/87 Revenues
- Growth Rates
- US/Intl Revenue
- Industry Served
- Deliver Modes

Analysis by
Delivery Mode

Analysis by
Industry Sector

Adjust for Companies
Not In Sample
> $10MM
< $10MM

Adjust for Companies
Not In Sample
> $10MM
< $10MM

Forecast by
Delivery Mode

Forecast by
Industry Sector

Integration

5 Year Growth
Rates by Mode
and Sector

Factors
- Technology
- Sector Trends
- Vendor Plans
- Economic Outlook
- Driving Forces
- Inhibiting Forces

Annual Market
and
Industry Reports

INPUT

INFORMATION SERVICES
INDUSTRY STRUCTURE
1988

```
                    Information Services
                          Industry
```

Customer Services
- Manufacturer Based
- Third-Party

Software Products
- Applications Software
- Systems Software

Processing & Network Services
- Electronic Info. Services
- Network Services
- Processing Services
- Systems Operations (Vendor-Owned)

Professional Services
- Consulting
- Education & Training
- Software Development
- Systems Operations (Client-Owned)

Turnkey Systems
- Equipment
- Packaged Software
- Customized Software
- Support

Systems Integration
- Equipment
- Packaged Software
- Custom Software
- Support

Industry-Specific Sectors (15)

Cross-Industry Sectors (7)

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8/88

Information Services Market—

An Overview

INFORMATION SERVICES MARKET

1987 - 1992

- Customer Services

- Software Products

- Processing and Network Services

- Professional Services
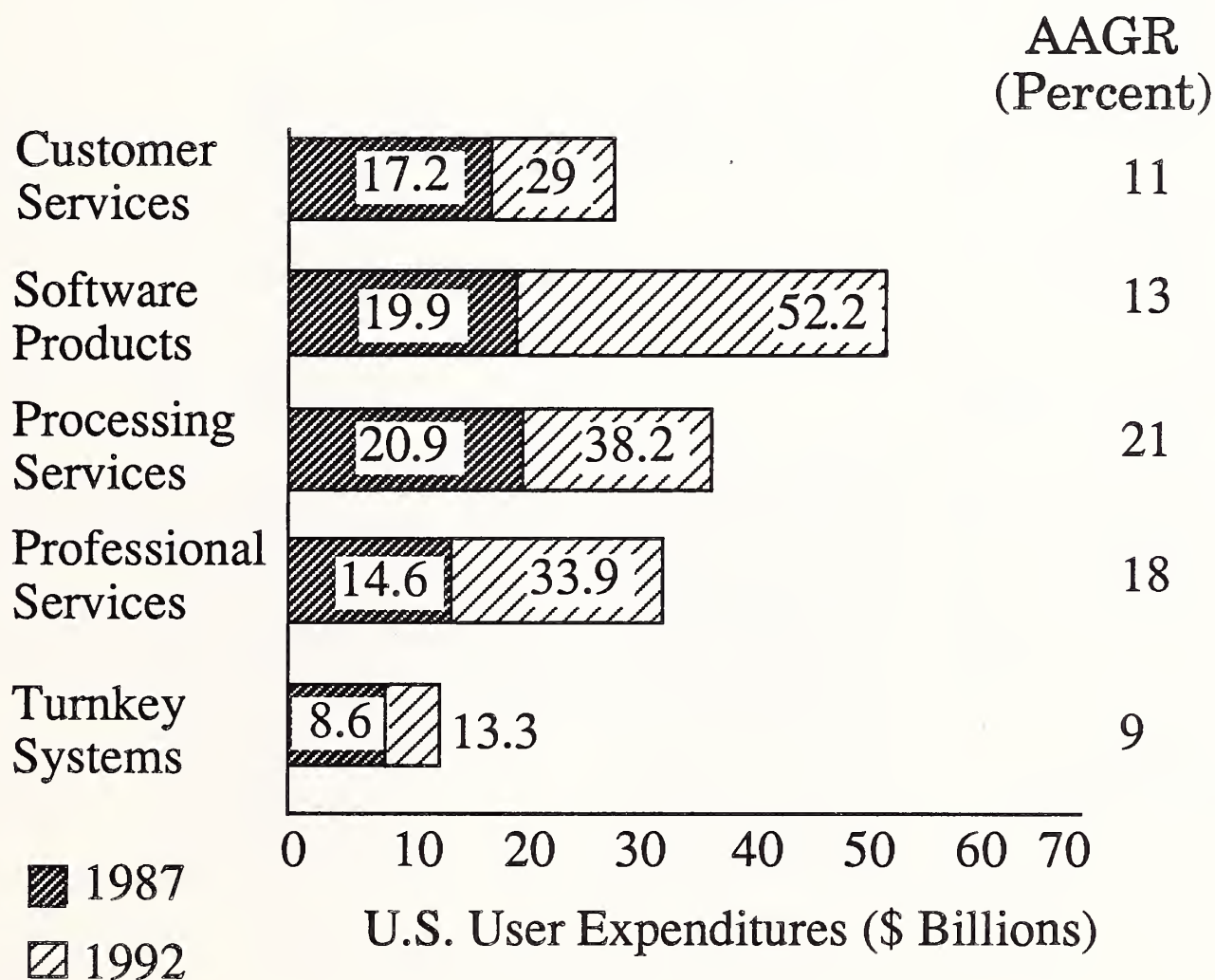
- Turnkey Systems
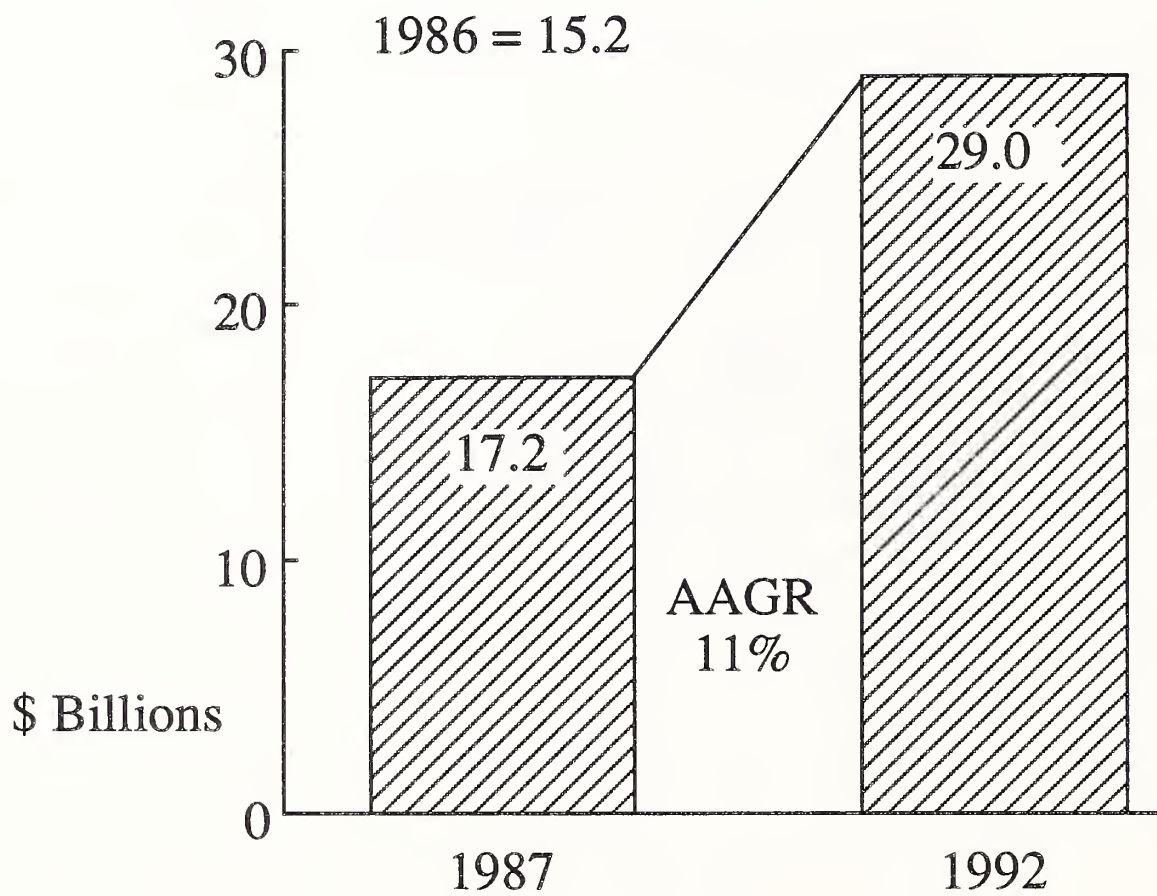
- Systems Integration

INFORMATION SERVICES MARKET

1986 = 54.6

$ Billions

64.0

AAGR
17%

137.7
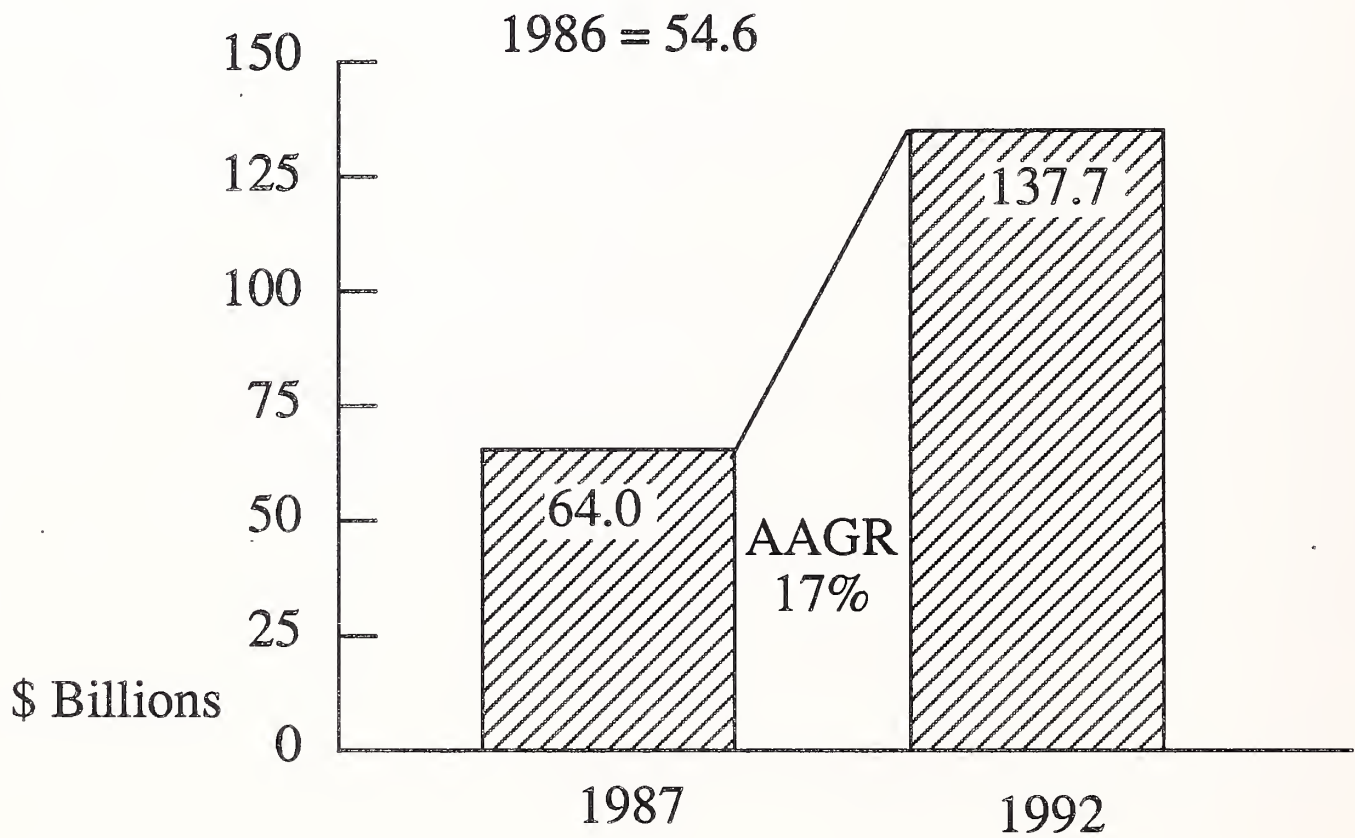
1987

1992

Does Not Include Customer Services Market—$17 Billion 1987

$29 Billion 1992
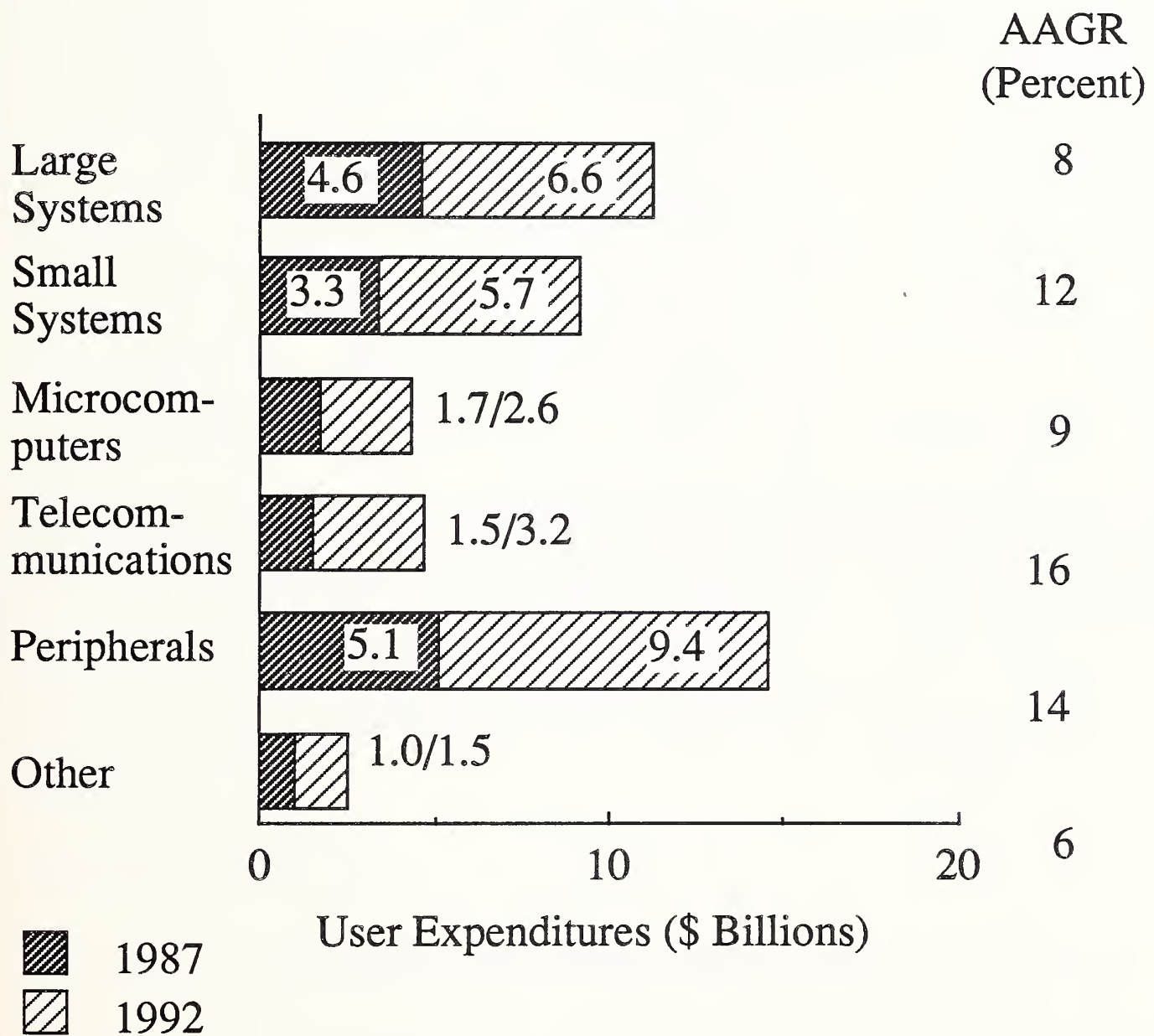
INFORMATION SERVICES INDUSTRY
BY DELIVERY MODE

AAGR
(Percent)

		AAGR (Percent)
Customer Services	17.2 / 29	11
Software Products	19.9 / 52.2	13
Processing Services	20.9 / 38.2	21
Professional Services	14.6 / 33.9	18
Turnkey Systems	8.6 / 13.3	9

0   10   20   30   40   50   60   70

▨ 1987
▨ 1992

U.S. User Expenditures ($ Billions)

INPUT

CUSTOMER SERVICE USER
EXPENDITURES

1986 = 15.2

$ Billions

30

20

10

0

17.2

29.0

AAGR
11%

1987

1992

ZIBC-SI1-10

CUSTOMER SERVICE USER EXPENDITURES
1987-1992

AAGR
(Percent)

Category	1987	1992	AAGR (Percent)
Large Systems	4.6	6.6	8
Small Systems	3.3	5.7	12
Microcomputers	1.7	2.6	9
Telecommunications	1.5	3.2	16
Peripherals	5.1	9.4	14
Other	1.0	1.5	6

User Expenditures ($ Billions)

1987
1992

INPUT

CUSTOMER SERVICE MARKET

Leading Service Vendors

Rank	Vendor	1987 Service Revenue ($MM)	Service as a Percent of Total Revenues	1986-1987 Service Growth (Percent)
1	IBM	3688[1]	15	(8)
2	Digital[2]	3135	33	26
3	UNISYS	3002	31	44
4	NCR[3]	1952	35	13
5	Hewlett-Packard	1731	21	17

1. US only - worldwide revenues are 7691.

2. Includes software support and consulting, customer training, and replacement parts.

3. Includes hardware maintenance, software support, custom programs and processing services.

INPUT

CUSTOMER SERVICES MARKET

- A $16-17 Billion Industry in 1987

- Growth is Continuing to Slow Due to Competition, Pricing Strategies and Improved Hardware Reliability

- TPM's Feeling Pressure, Merging to Survive and Grow

- Automated Delivery of Service Becoming More Common

- Professional Services Opportunities Exist

- Documentation Remains Biggest Problem

- IBM's CSA/MRSA Have Huge Impact on Market Practices and Pricing
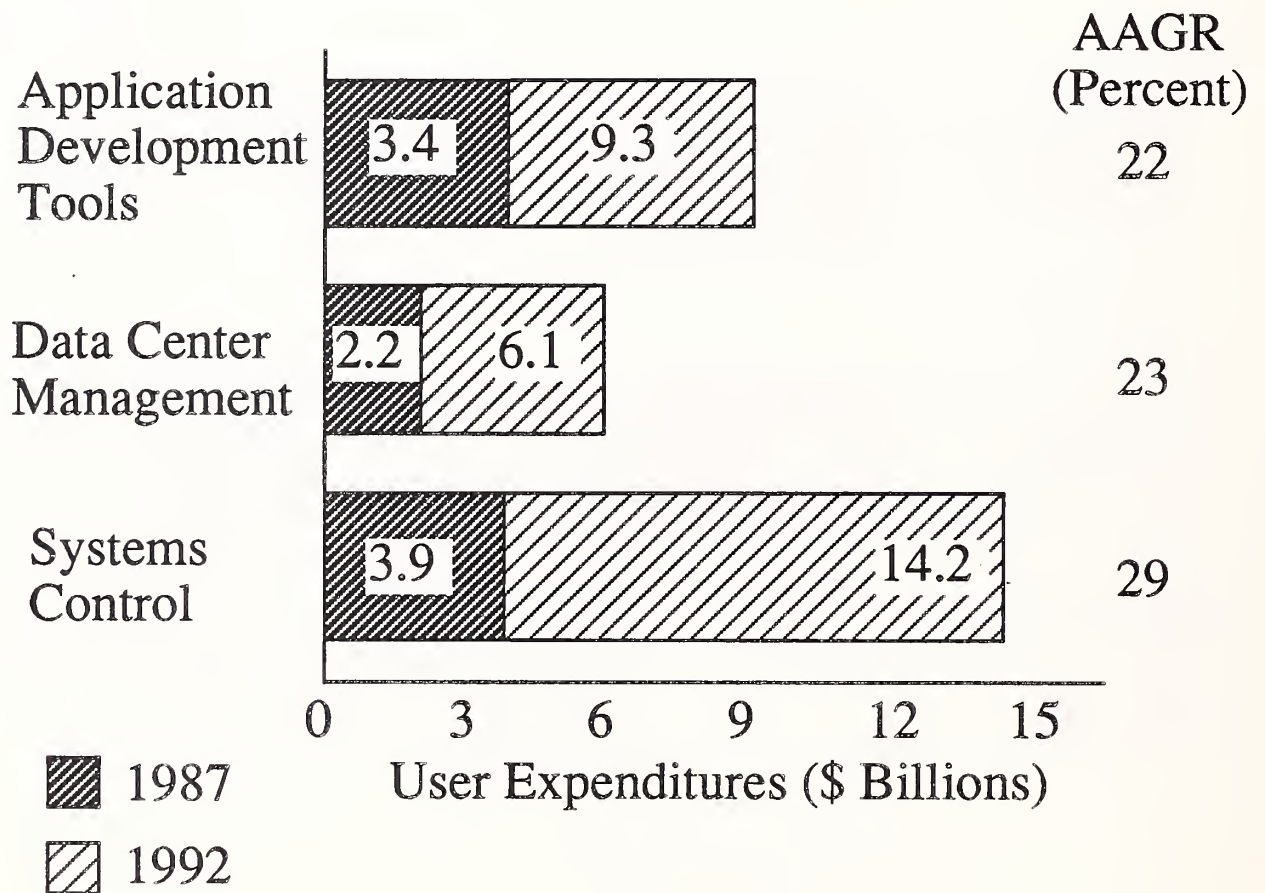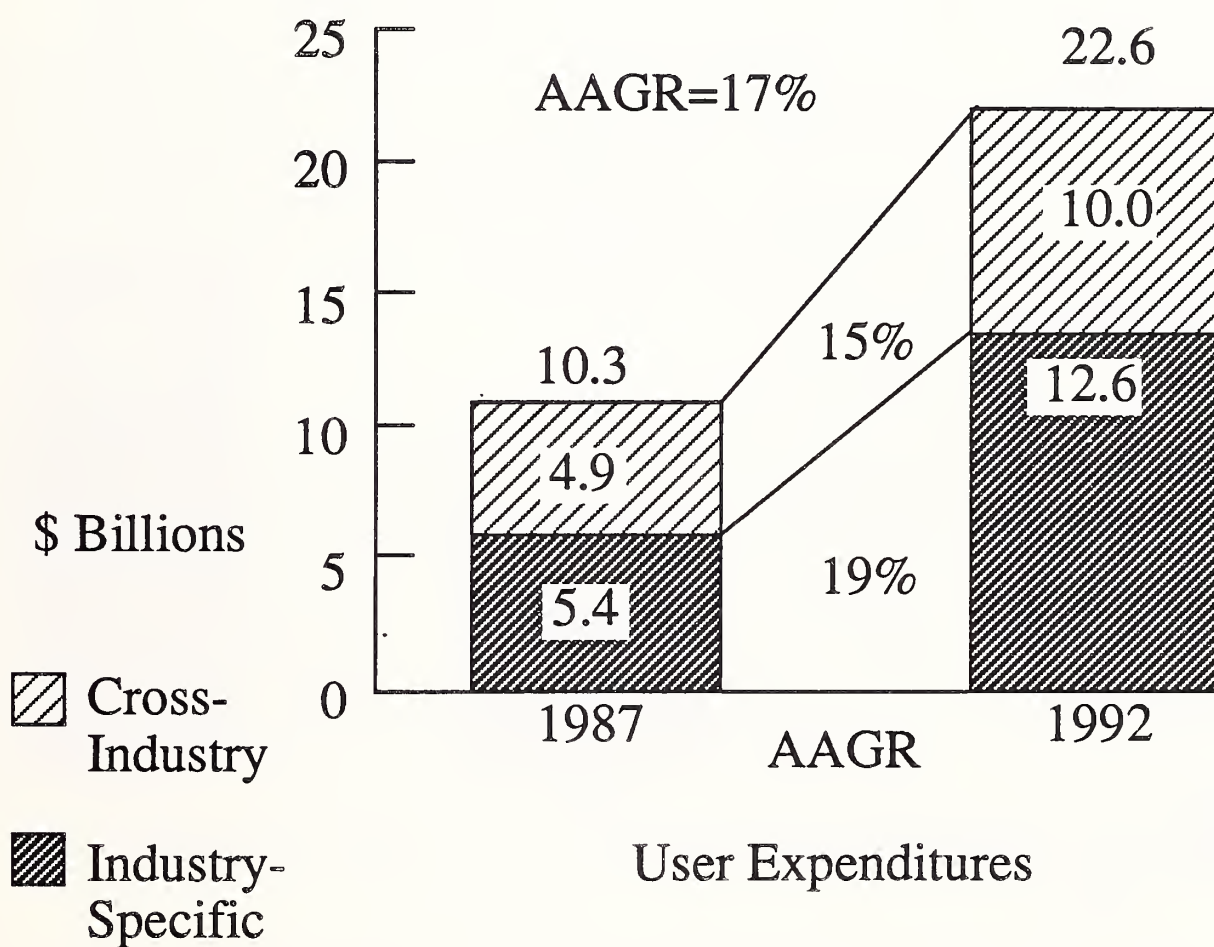
SOFTWARE PRODUCTS MARKET

1986 = 16.2

19.9

AAGR 21%

52.2

$ Billions

50
40
30
20
10
0

1987

1992

User Expenditures

SOFTWARE PRODUCTS MARKETS

AAGR
(Percent)

Applications
Software   10.3   22.6   17

Systems
Software   9.6   29.6   25

0   5   10   15   20   25   30   35

Total U.S. User Expenditures ($ Billions)
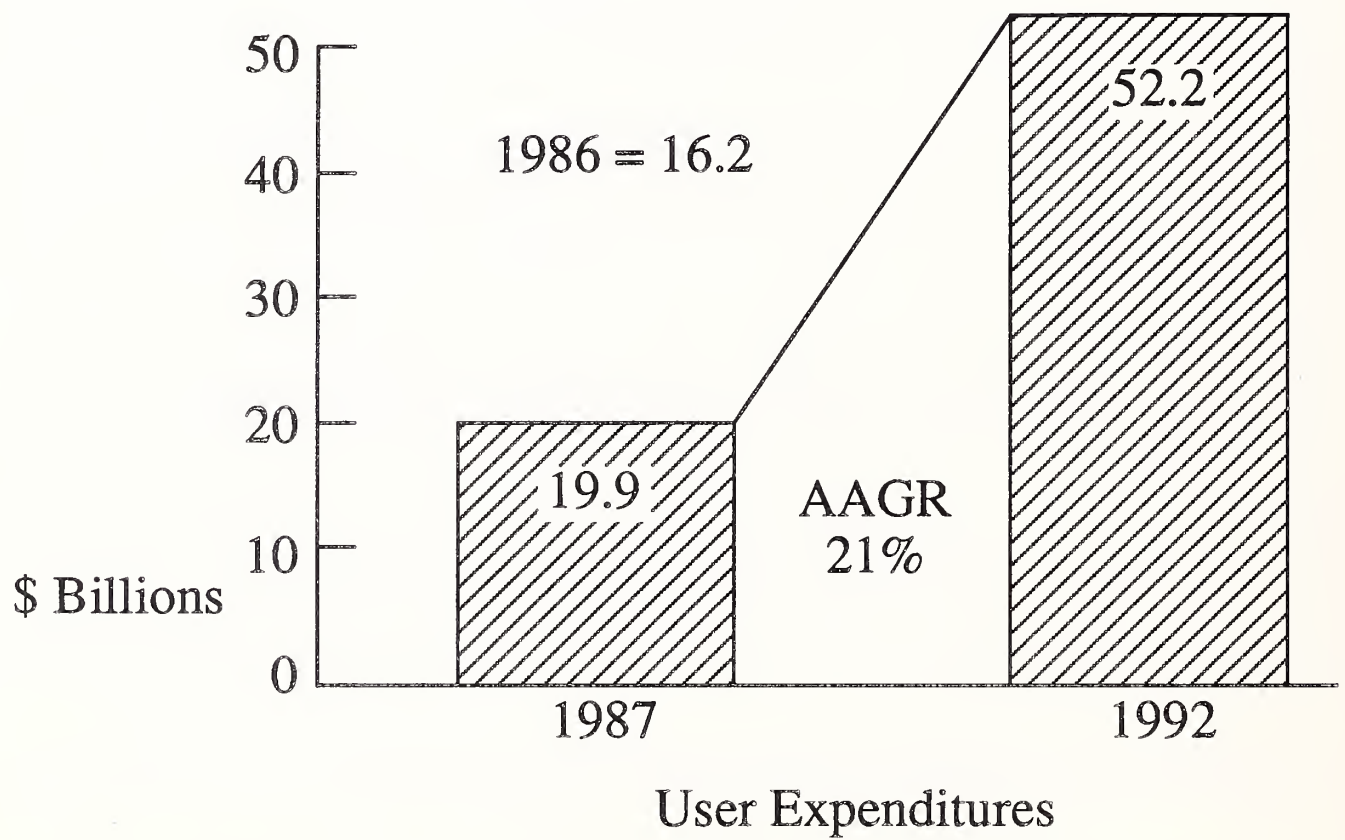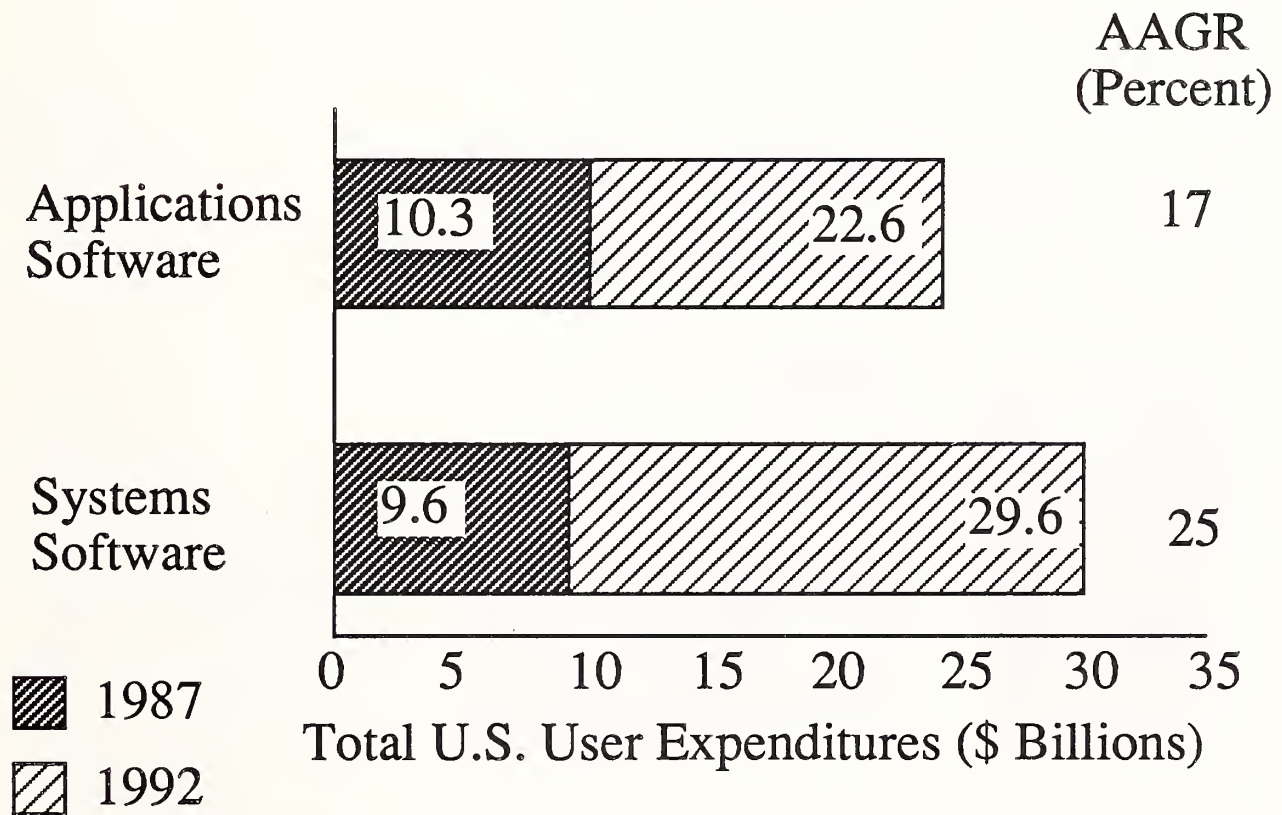
1987
1992

TOTAL SYSTEMS SOFTWARE MARKET
BY SOFTWARE TYPE, 1987-1992

AAGR
(Percent)

Application
Development
Tools

3.4   9.3   22

Data Center
Management

2.2 6.1   23

Systems
Control

3.9   14.2   29

0   3   6   9   12   15

▨ 1987   User Expenditures ($ Billions)
▧ 1992

INDUSTRY-SPECIFIC APPLICATIONS SOFTWARE TO INCREASE SIGNIFICANTLY

SOFTWARE PRODUCTS MARKET FORECAST, MAINFRAME/MINI AND MICRO: 1987-1992

$ Billions

1986 = 16.2

52.2

13.6

38.6

19.9

4.5

15.4

AAGR 21%

Micro

Mainframe/ Mini

1987

1992
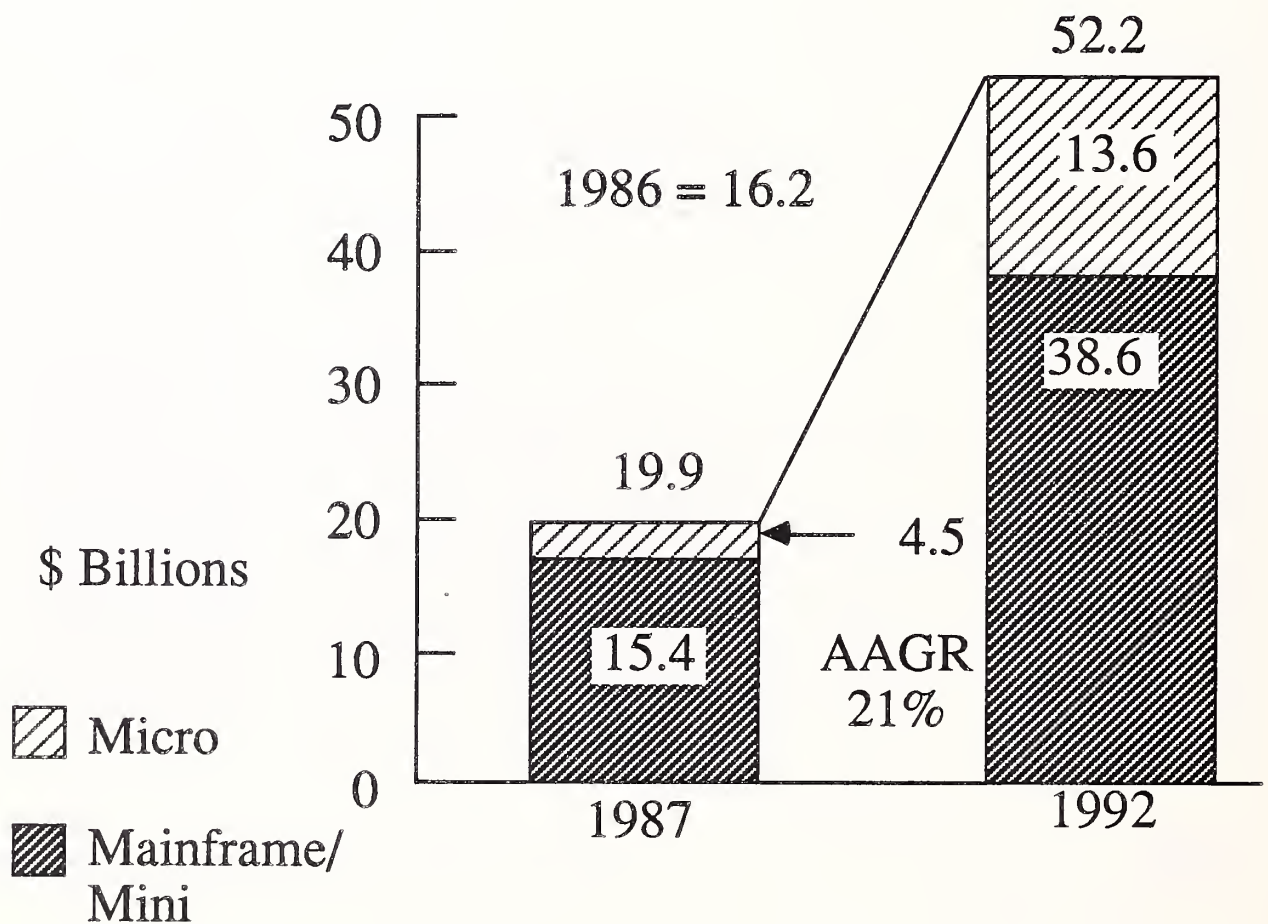
SOFTWARE PRODUCTS MARKET

Trends

- Driving Forces
  - Workstation Power
  - Required Application Complexity
  - Networking Demands
  - Cooperative Processing and LANS
  - Relational and Distributed Data Base Technology
  - SAA

- Inhibiting Forces
  - Mature Mainframe Market
  - Declining Price per Copy
  - Absorption
  - Competitive Practices and Pricing
  - Workstation - Minicomputer Shakeout
  - AS/400 Impact on DBMS Placements

- Growth Areas
  - CASE
  - Executive Information Systems
  - IMAGE Processing
  - Relational Data Base Management Systems
  - Knowledge Base Tools
  - Object Oriented Technology

PROCESSING/NETWORK SERVICES MARKET

$ Billions

1986 = 18.3

20.9

AAGR 13%

38.2

1987

1992

User Expenditures
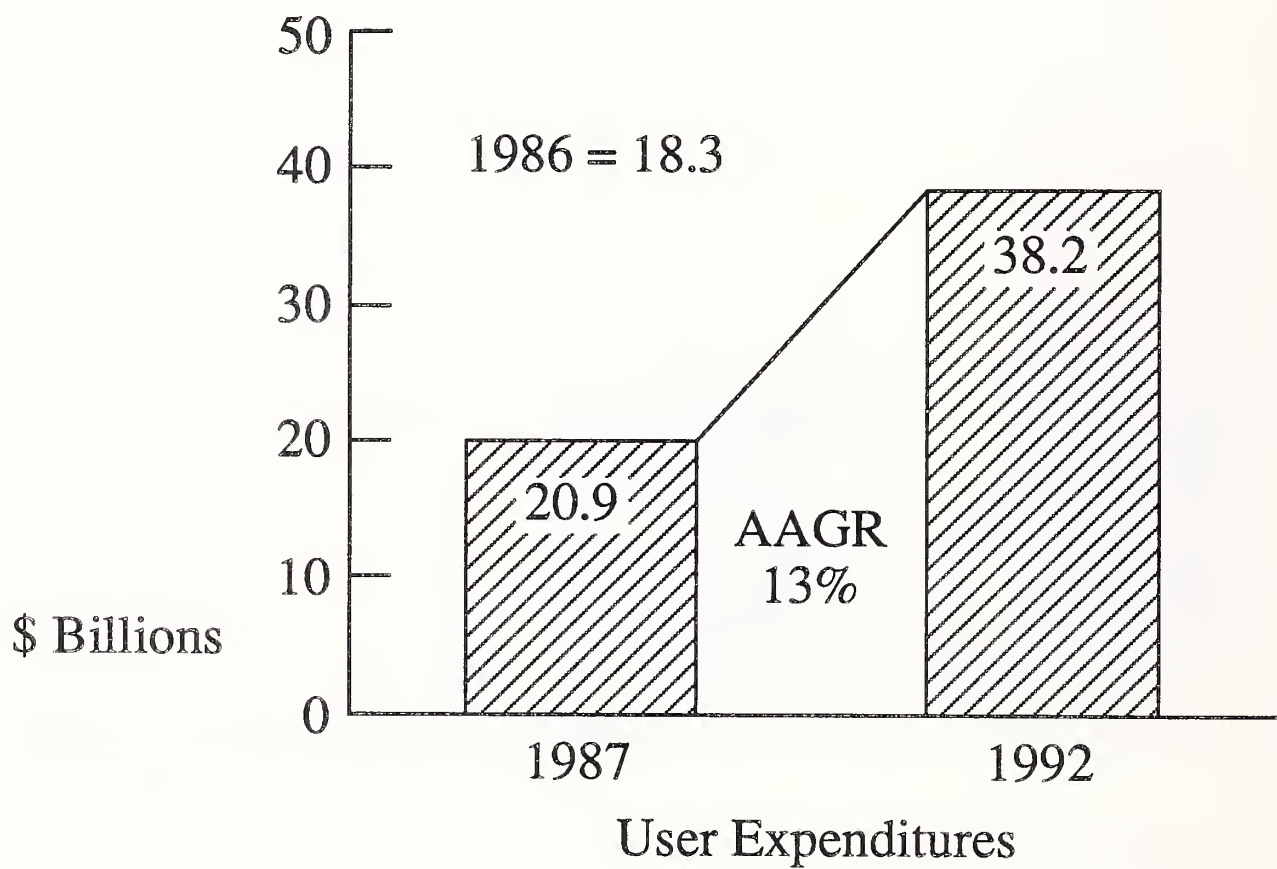
PROCESSING/NETWORK SERVICES MARKETS, 1987-1992
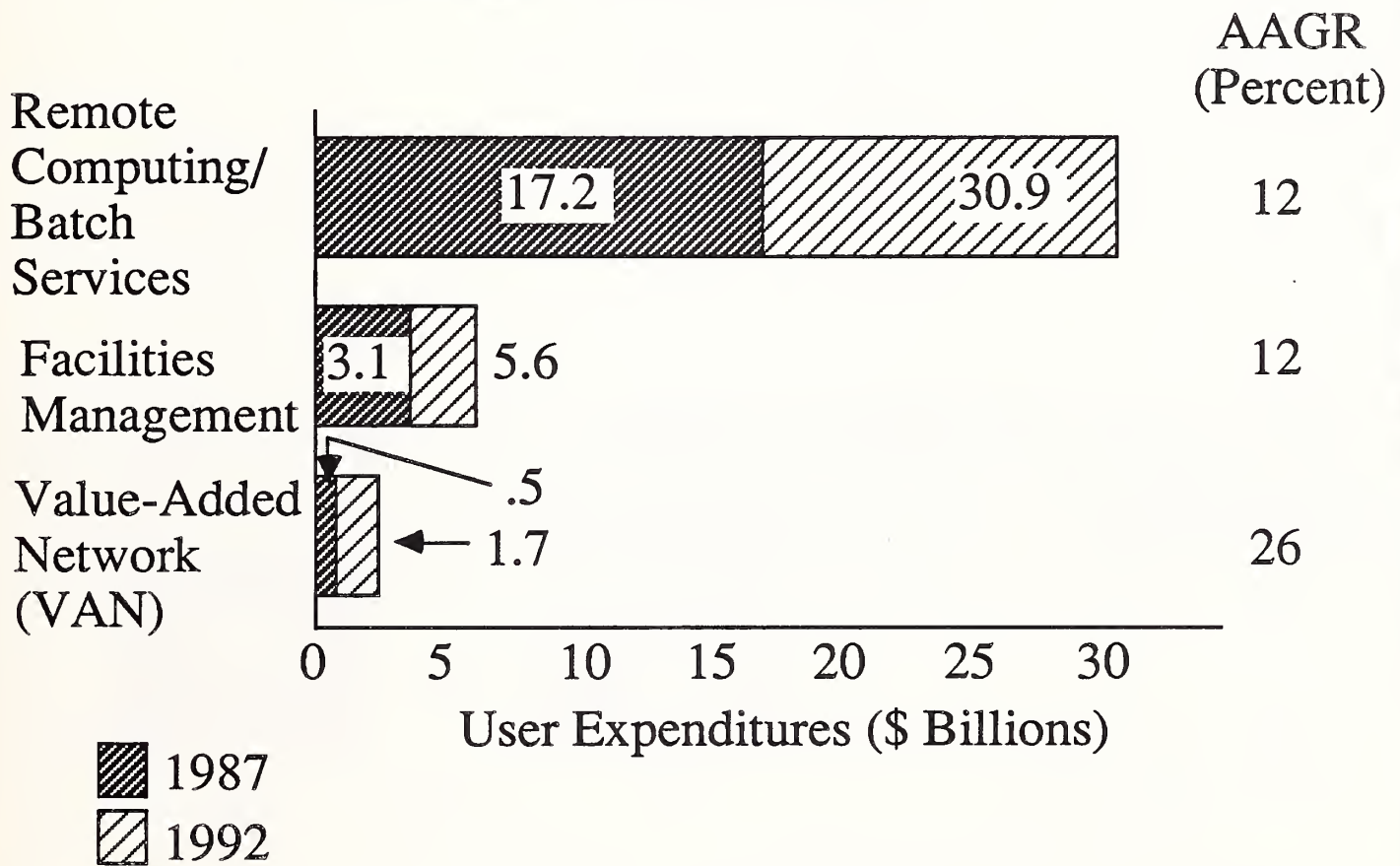
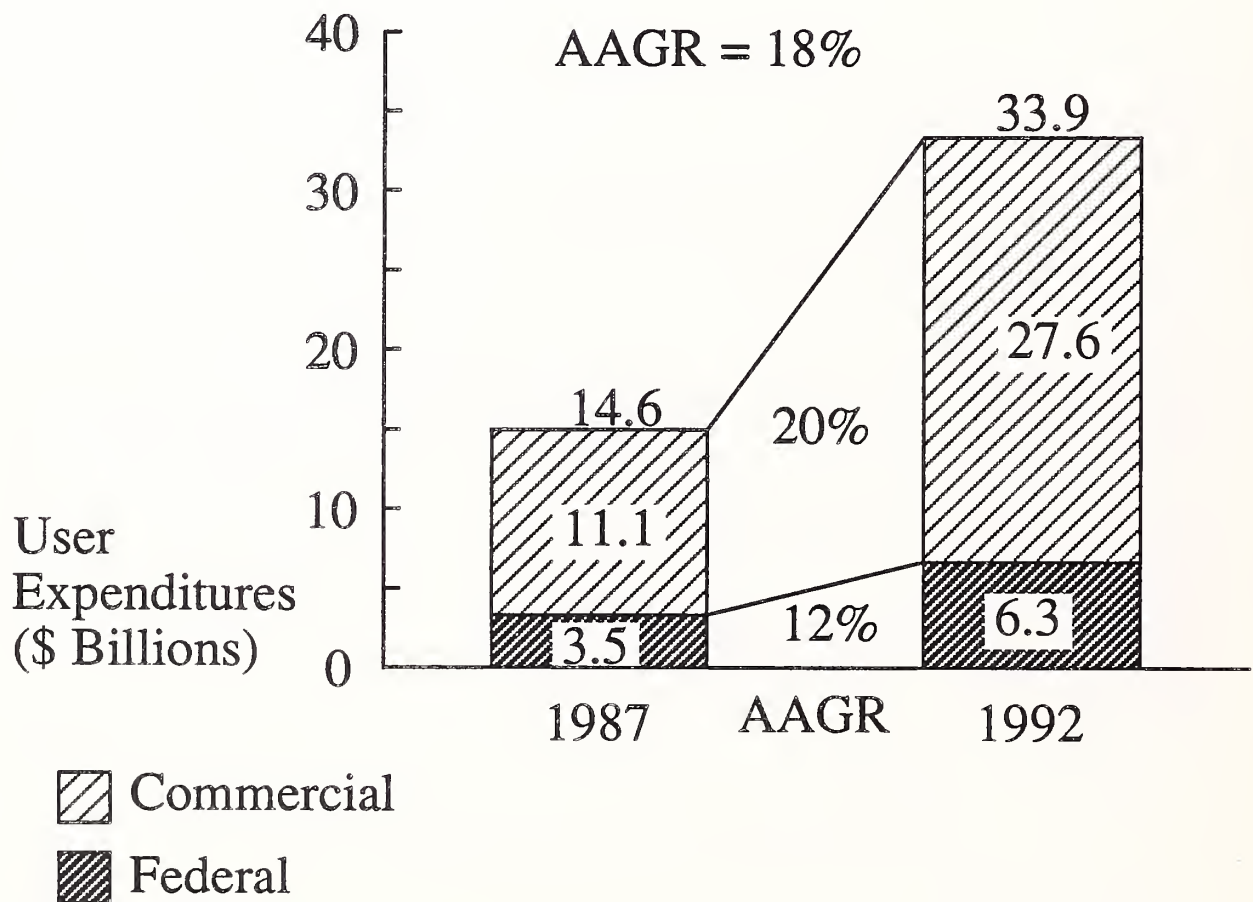ONLINE DATABASE MARKET SIZE
1987-1992

ZIBC-SI1-22
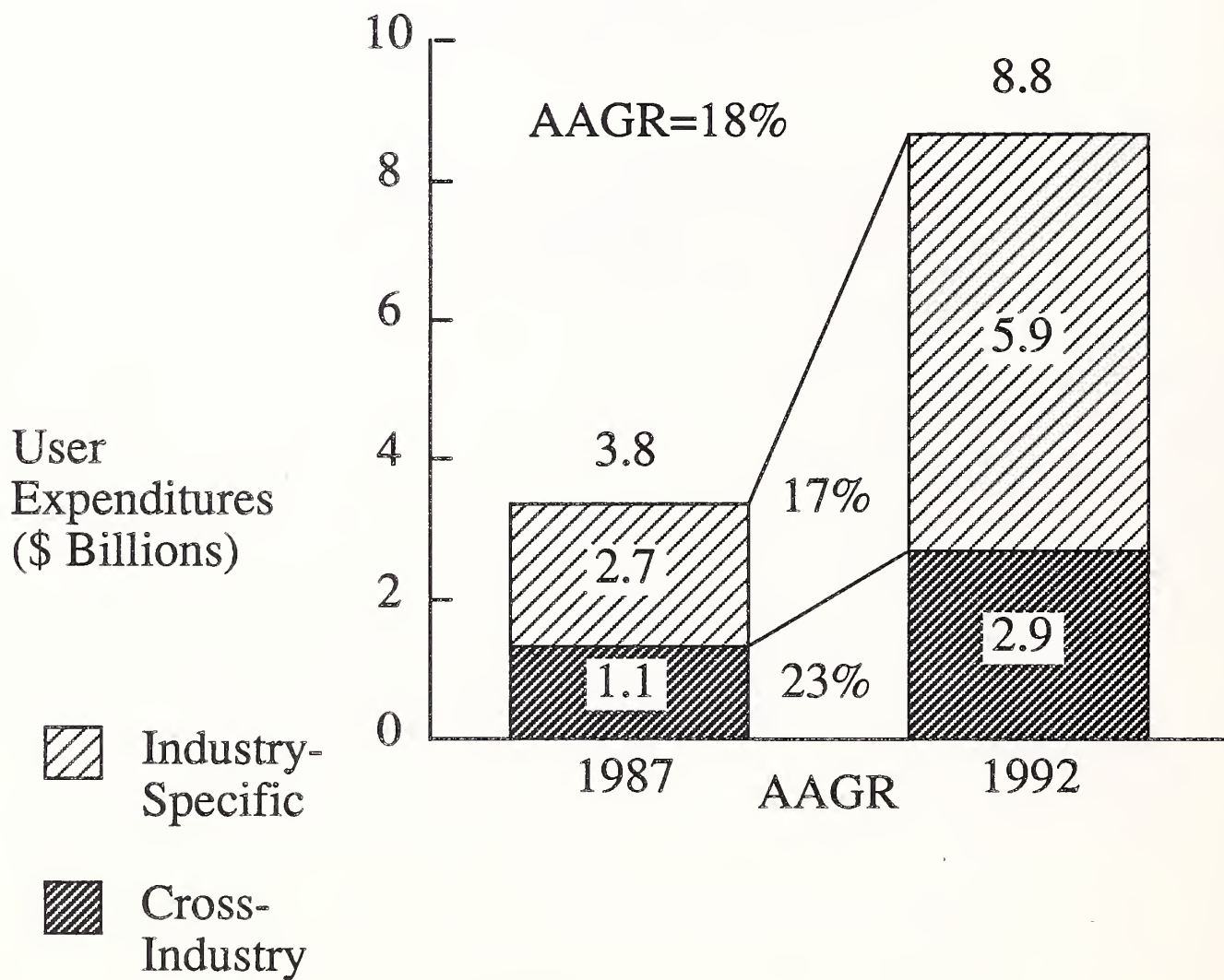
PROCESSING & NETWORK SERVICES

Trends

- Mature Market
  - Few Competitive Changes
  - Cost of Entry High

- On-Line Data Base Segment Experiencing Strong Growth
  - DA-ROM Impact Unclear

- EDI Evolving Quickly

- Steady Growth
  - Network/Transaction Processing Growth Increasing
 - Batrch Processing FGrwth Slowing

PROFESSIONAL SERVICES MARKET
USER EXPENDITURES BY SEGMENT
1987-1992

AAGR = 18%

User Expenditures ($ Billions)

33.9

27.6

14.6

11.1

20%

3.5

12%

6.3

1987   AAGR   1992

▨ Commercial

▨ Federal

CONTRACT SERVICES MARKET
BY MODE
1987-1992

Service Type	U.S. User Expenditures ($ Billions)	AAGR* 1987-1992 (Percent)
Software Development	7.6 / 14.5	14
Consulting	2.5 / 6.4	21
Education and Training	1.6 / 4.2	21
Facilities Management	1.0 / 1.6	10

0   5   10   15   20
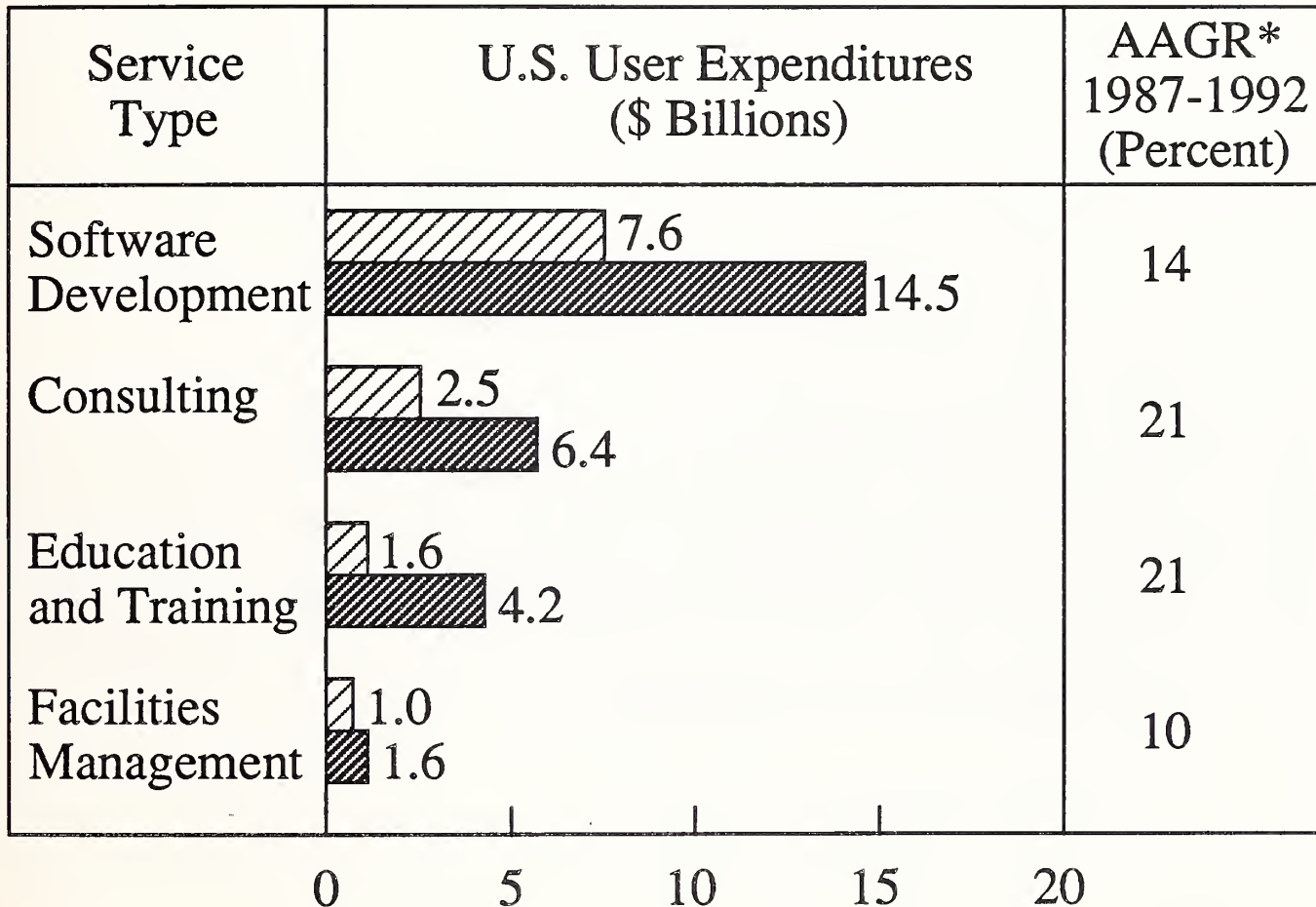
1987 $12.7 Total
1992 $26.7 AAGR* 16%

* Average Annual Growth Rate

PROFESSIONAL SERVICES MARKET

Trends

- Differentiation Phase
  - New Markets Emerging
  - Cost of Entry Not Excessive
  - High Growth Rate
  - People Intensive

- Specialization Increasing

- Distribution Potential

- Product Sophistication

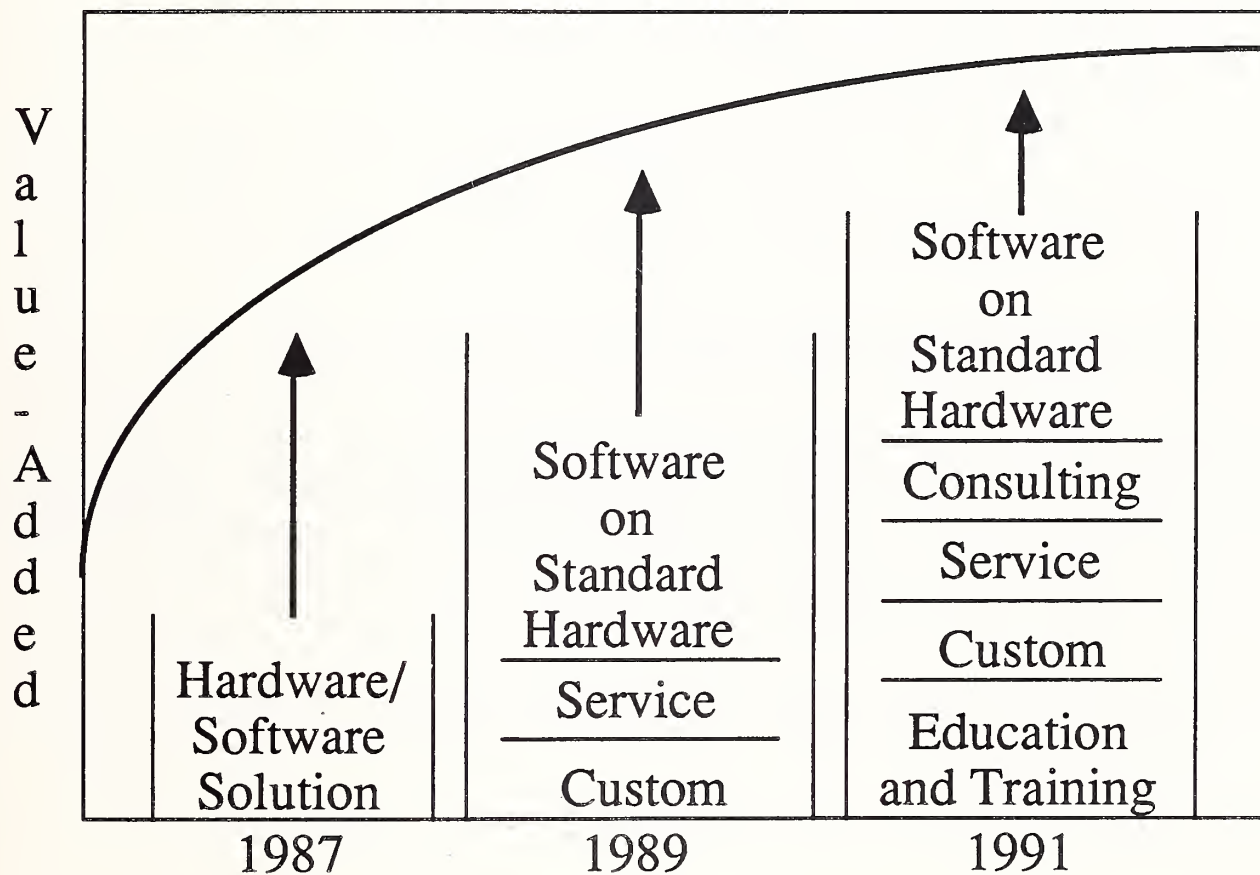- Impact on and from Systems Integration

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TURNKEY SYSTEMS MARKET

$ Billions

User Expenditures

1986 = 7.8

8.6

AAGR
9%

13.3

1987

1992

ZIBC-SI1-27
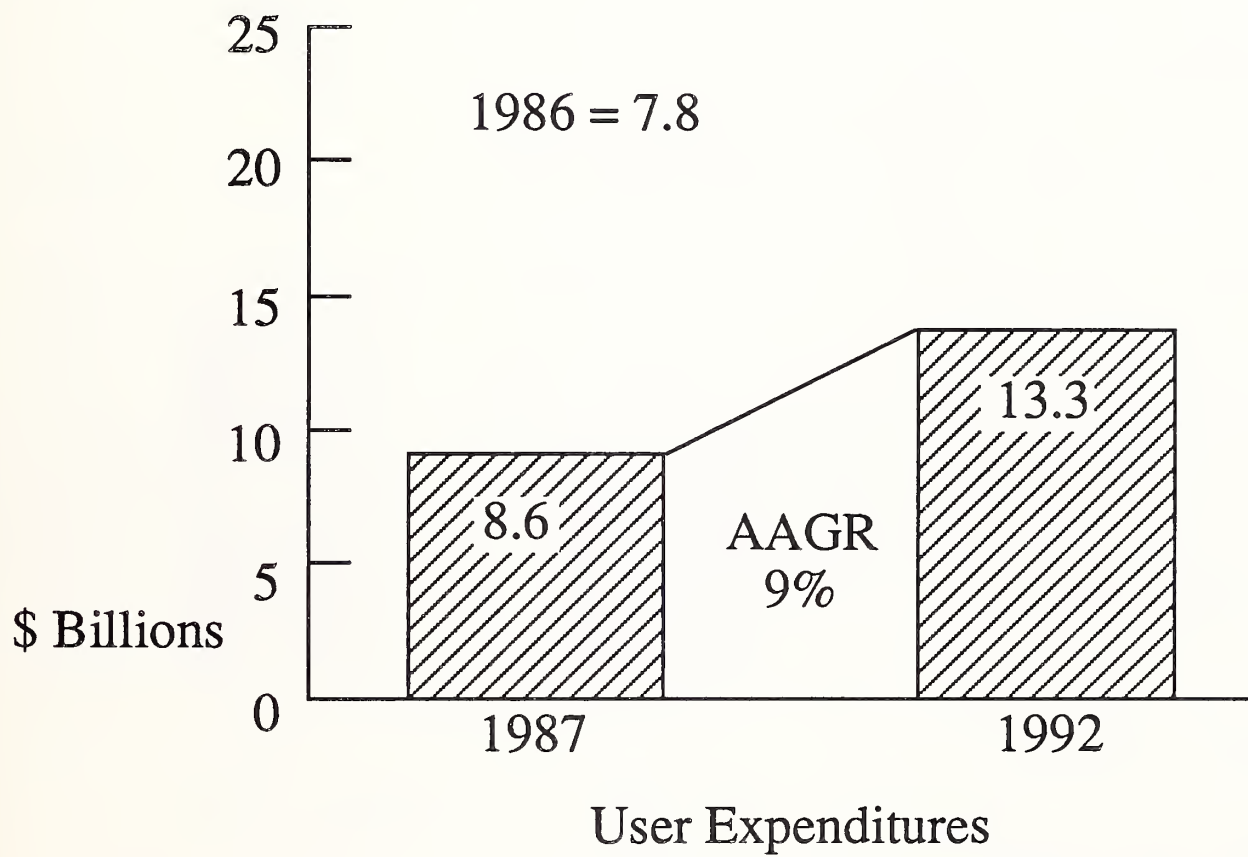
CUSTOM VS. PACKAGED TURNKEY
SYSTEMS MARKET, 1987-1992

$ Billions

AAGR = 9%

13.3

19%

8.6

1.0 →

10

7.6

8%

11.0

2.3

0

1987   AAGR   1992

▨ Custom

▨ Packaged

User Expenditures
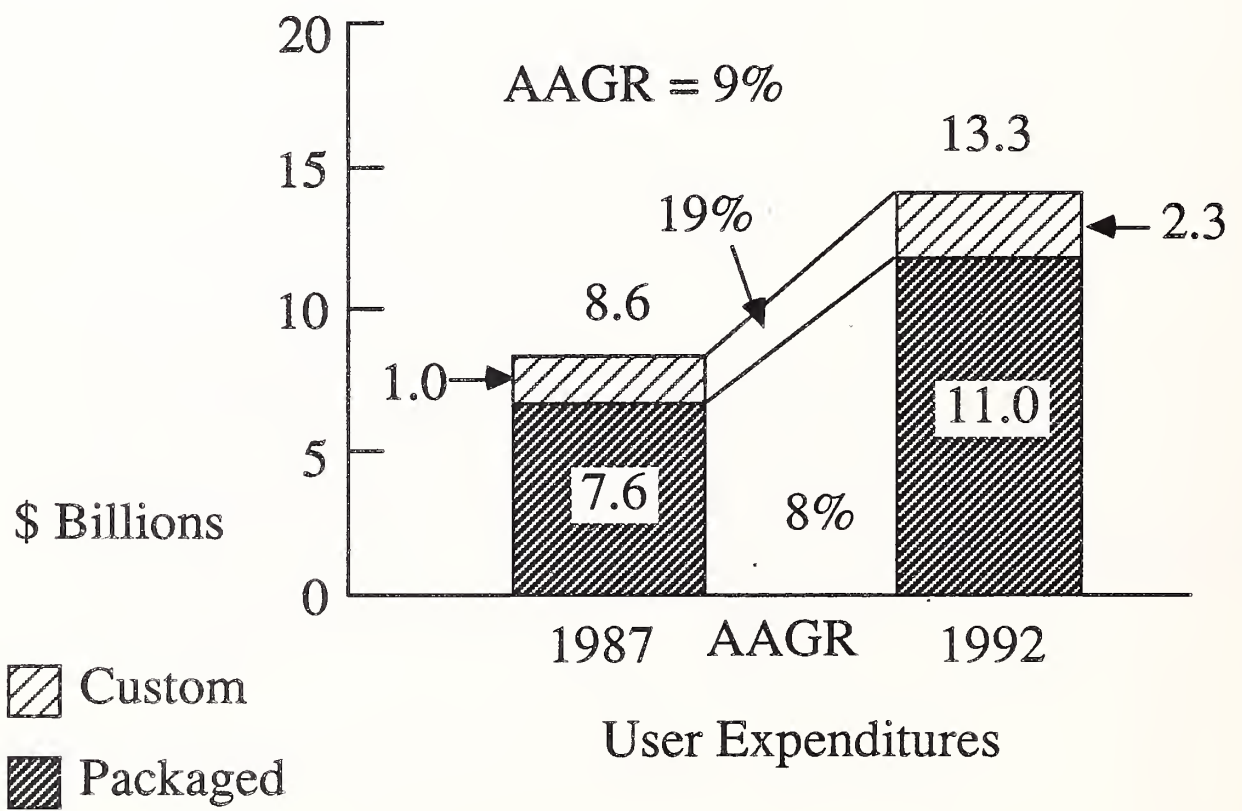
INPUT

VALUE-ADDED SERVICES IN THE FUTURE

ZIBC-SI1-29

TURNKEY SYSTEMS MARKET

Trends

- Saturation Phase
  - Tough Market
  - Cost of Customization
  - Growth Slowing

- Hardware Vendors Providing Total Solutions

- Hardware Profit Contribution Declining

- Hardware Vendors Competing on Hardware Portion

- Customizing Potential

- Cash/Balance Sheet Requirements for Prime Contracting

- Micro-based Solutions Impacting Minicomputers

- Support Revenues Vital to Survival

- Migration to "Software or Services" Company

INFORMATION SERVICES MARKET

1987 - 1992

- Customer Services Market Growth Modest and Declining

- Software Products Market Experiencing Strong Growth

- Processing Services Market Experiencing Steady Growth with Some Strong Segments

- Professional Services Market Experiencing Strong Growth

- Turnkey Market Growth Modest and Declining

- Changing Market Structure Indicates Changing Buyer Environment
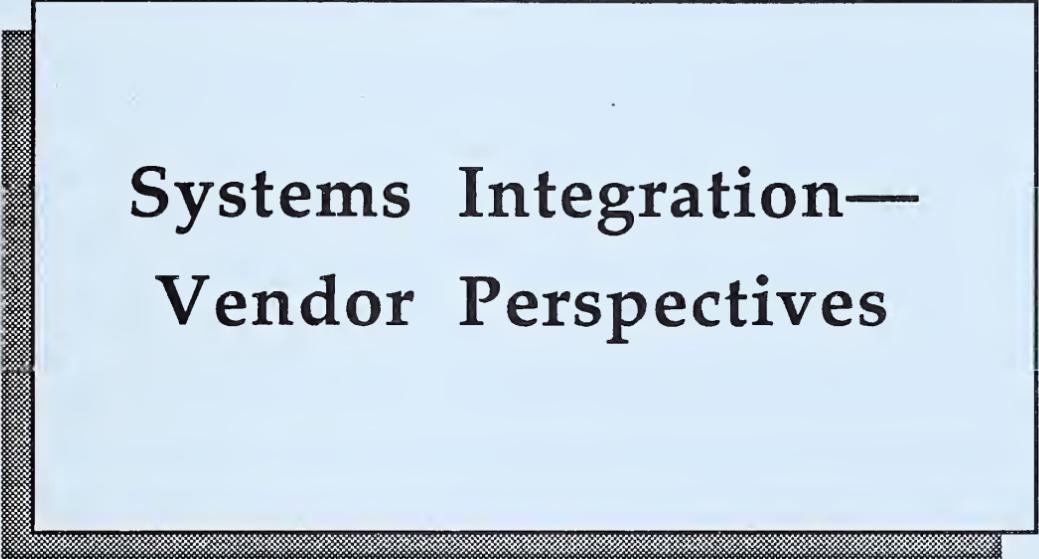
Systems Integration— Vendor Perspectives

SYSTEMS INTEGRATION—
VENDOR PERSPECTIVES

Topics

- Systems Integration Market - Definition of <u>Convenience</u>

- Impacts of the Changing IS Environment

- Systems Integrators - Who Are They?

- Project Classification

- Major Competitors

- Pricing and Margins

SYSTEMS INTEGRATION MARKET
Definition for Convenience

Multiple Definitions Do and Will Exist
for
the Convenience of the Vendors!!!

SYSTEMS INTEGRATION MARKET
Definition for Convenience

INPUT's Definitions

Original

"The Provision of a *Total* Solution to a Multi-disciplinary Information Systems Requirement".

Working

"The Provision of an *Integrated* Solution to a Multi-disciplinary Information Systems Requirement".

IBM's Definition

"Providing **Value Add** by Assuming Responsibility for Combining Information Products and Services into a Solution to Meet a Specific Need".
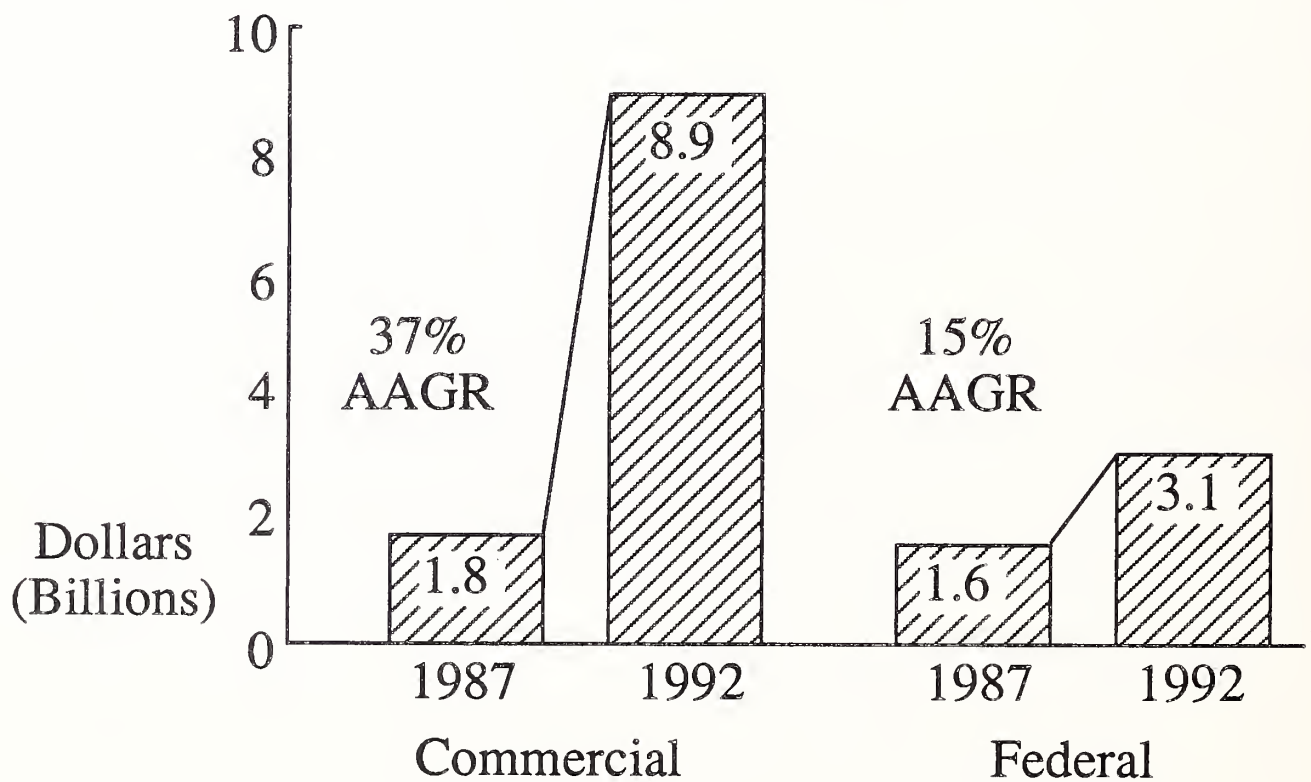
Based on a Historic All Things To IS Approach: Conversions, Migration, Applications, Data Network Projects; and the Prime or Sub for the Hardware Pieces.

The Market's Definition

"Assume a **Management Role** in the Provision of an Information Technology Based Solution to A Critical Business Requirement - Small or Large".

SYSTEMS INTEGRATION
EXPENDITURE FORECASTS (U.S.)

IBM Canada - SI Growth Rate 25-28%

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SYSTEMS INTEGRATION MARKET
The Changing Environment
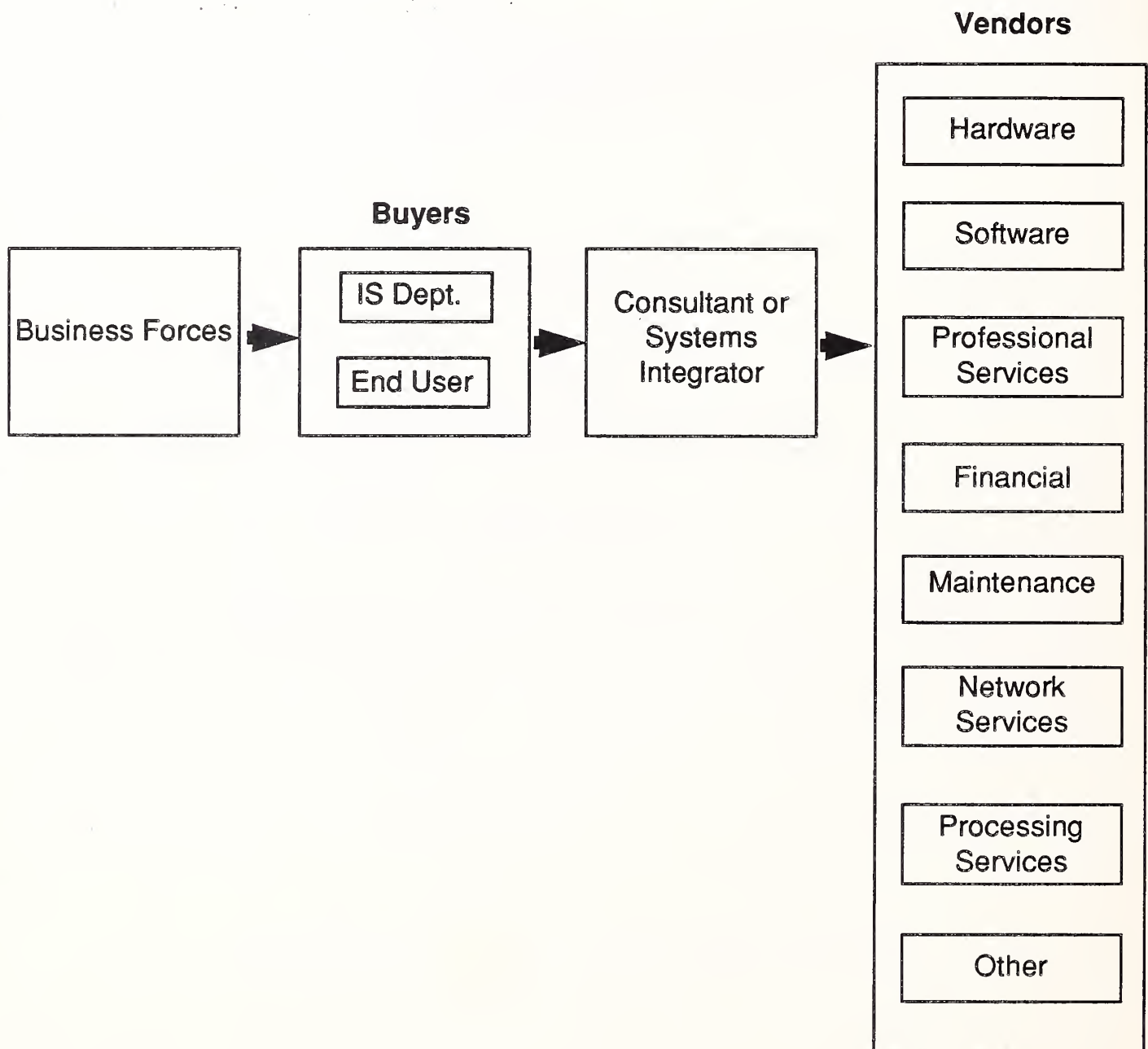

INPUT Premise

"Changing Buying Patterns

Will Dictate

Changing Selling and Service Patterns"

SYSTEMS INTEGRATION MARKET
The Changing Environment

Vendors

Buyers

Business Forces

IS Dept.

End User

Consultant or
Systems
Integrator

Hardware

Software

Professional
Services

Financial

Maintenance

Network
Services

Processing
Services

Other

INPUT

THE CHANGING ENVIRONMENT

Systems Integration Solves Vendor Problems

<u>Problem</u>	<u>Solution</u>
Incomplete, Unintegrated Products	Multi-vendor Products Under Integrator Umbrella
Packaged Products that Don't Fit	Services that Build to Specifications
Increased Competition	Systems Integration Distribution Funnel - Account Control

THE CHANGING ENVIRONMENT

Systems Integration—Vendor Opportunity

- Account Control

- Create a New Market

- Establish a New Distribution Channel for "Core" Products and Services

- Create a Business Base - a Backlog

- Sell to More Types of Buyers

- Generate Additional Revenue and Earnings

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SYSTEMS INTEGRATION
Vendor Classification

Category	Examples
Hardware Producers	IBM Digital UNISYS CDC
Communication/Network Suppliers	RBOCs AT&T
Professional Services	Arthur Anderson
Custom Software Developers	Systemhouse Computer Task Group
Systems Suppliers	BCS EDS MMDS
Application Software Suppliers	BIS Banking Systems, Inc.
Systems Software Suppliers	Oracle Pansophic
Turnkey Suppliers	CAP Gemini America AGS Computers
Federal Systems Integrators	EDS American Management Systems

— INPUT —

SYSTEMS INTEGRATION
Vendor Classification

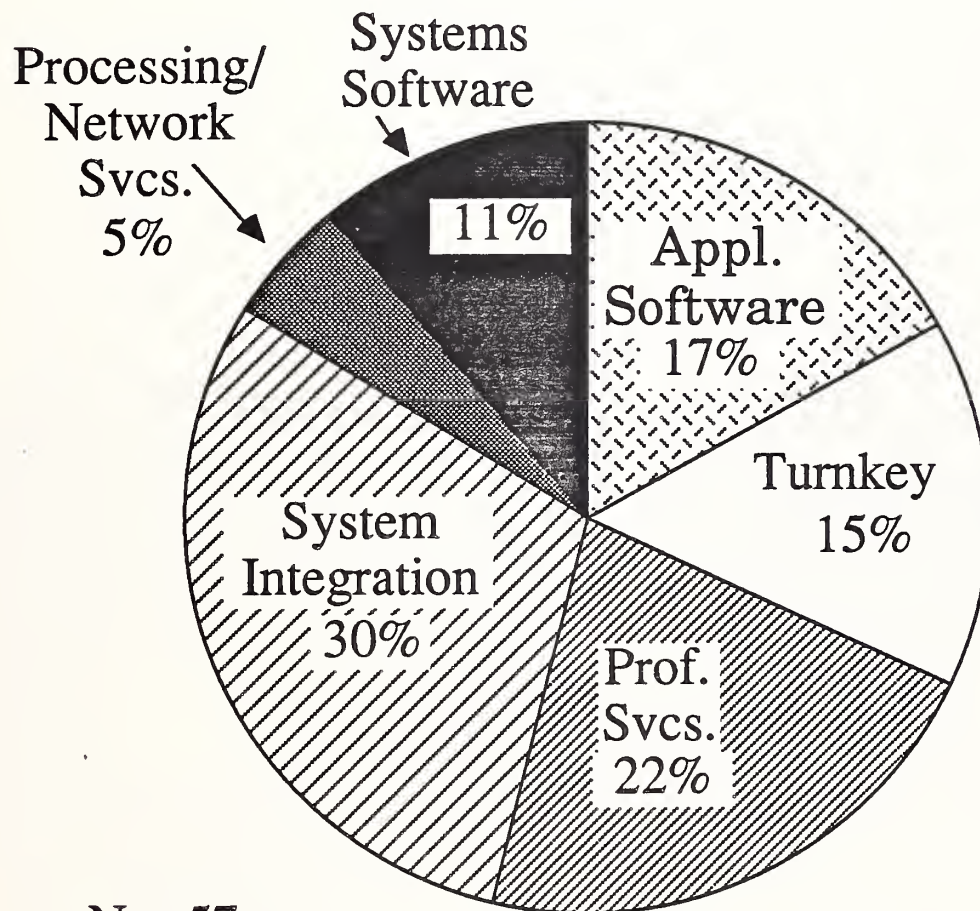**Primary SI Vendors**

- Vendors Organizing to Support the Opportunity
  - IBM
  - Arthur Anderson

- Major Vendors Evolving Their Business Strategy
  - Systemhouse
  - Digital

- Established Competitors
  - BCS
  - CDC
  - UNISYS
  - EDS

Secondary SI Vendors

- Major Vendors Without Clear Strategy
  - AT&T
  - RBOCS
  - Other Major Accounting Firms

- Opportunists
  - Turnkey Vendors
  - Software Companies
  - Small Custom Shops
  - Small Professional Services Companies

- Emerging Competitors
  - Oracle
  - Computer Task Group

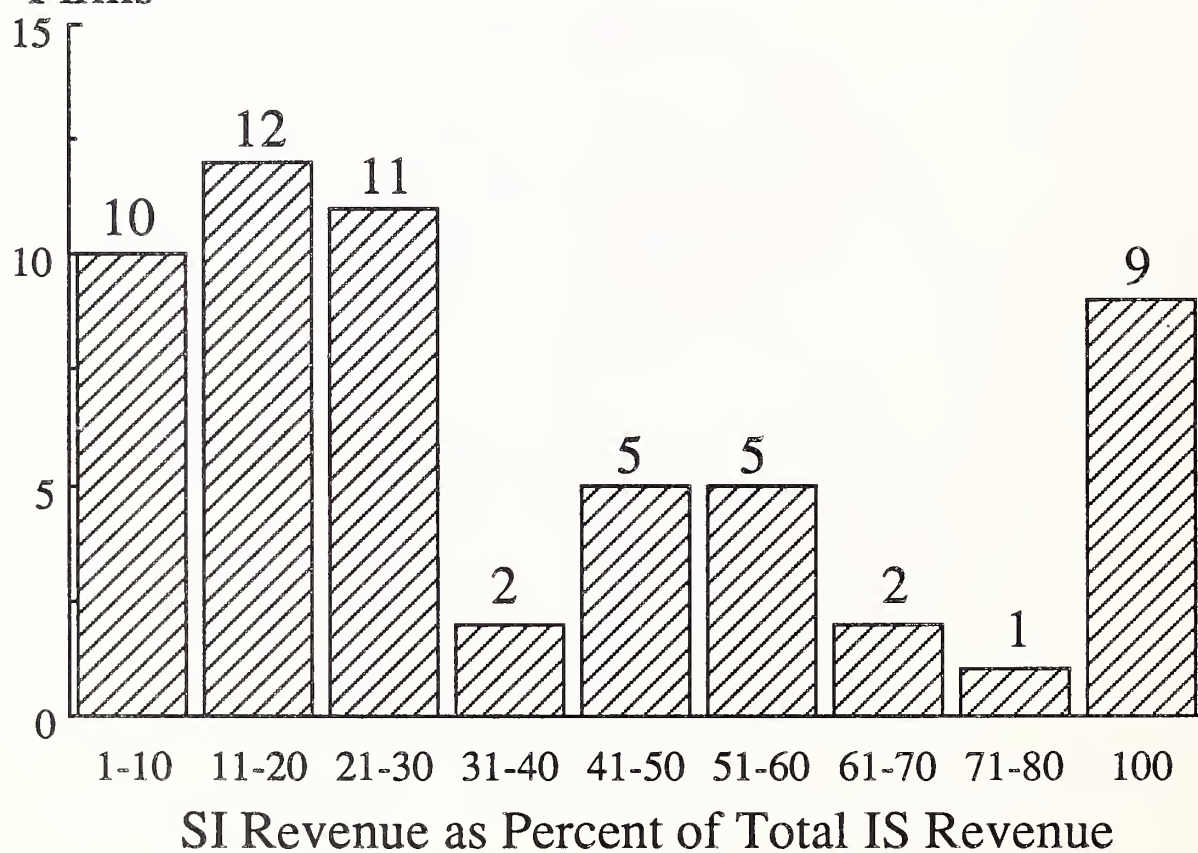INPUT

SECONDARY SI VENDORS

"Primary" IS Business

Processing/
Network
Svcs.
5%

Systems
Software
11%

Appl.
Software
17%

Turnkey
15%

Prof.
Svcs.
22%

System
Integration
30%

N = 57

SECONDARY SI VENDORS

SI Revenues as Percent of Total IS Revenues

Number of Firms

SI Revenue as Percent of Total IS Revenue

N=57

SECONDARY SI VENDORS

SI Revenues: A <u>Growing</u> Part of
the Secondary Vendor's Business?

	1986-1987 <u>Percent Growth</u>
Positive Growth	34 Vendors
Negative Growth	5 Vendors
New/No Change	10 Vendors

N=49

# SECONDARY SI VENDORS
Perceptions and Limitations

Perceptions

- High Level of Interest in SI - a New Market

- Generally Do Not Want to be Prime Contractor

- SI is a Growing Part of Their Business

- Know Who Major Players Are

- Want Visibility to Major Players for Specific Capabilities

Limitations

- Experience Base is Often Limited

- No Large Project Management Experience

- Narrow Technical Skills

- Lack of Financial Resources

- If Software or Turnkey, Restricted to Own Solution

SI PROJECT CLASSIFICATIONS

ZIBC-SI2-15
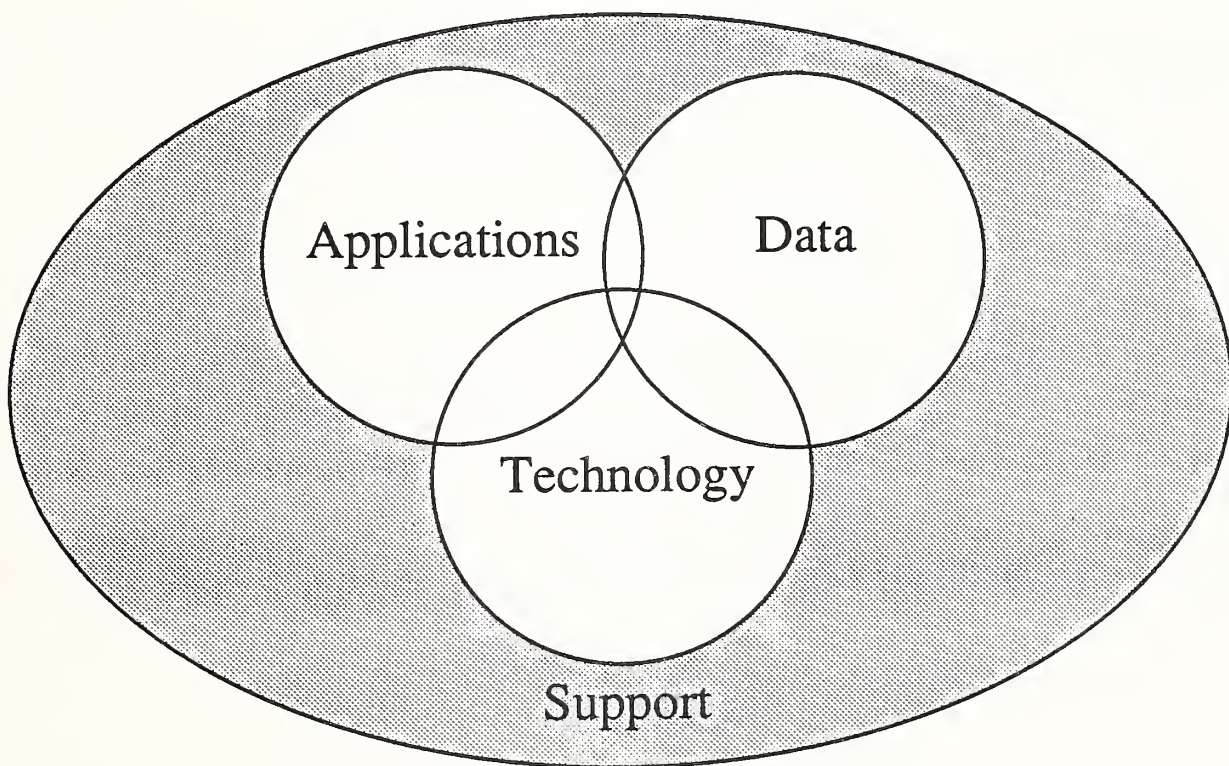
APPLICATIONS-FOCUSED SI PROJECTS

Dominant Vendor Classes :   **57%**—Professional Services
13%—Turnkey Systems

Critical Technologies: Project Management
Methodology

CASE Tools

Applications Shells

Primary Alliances: Applications Software
Companies

Systems Software Companies

Secondary Alliances: Hardware Companies

Telecommunications
Companies

DATA-FOCUSED SI PROJECTS

Dominant Vendor Classes: **80%**—Professional Services

Critical Technologies: Data Analysis/Design Tools

                                               Conventional & Relational DB Software

Primary Alliances: Applications Software Companies

Secondary Alliances: Hardware Companies

                                               Telecommunications Companies

TECHNOLOGY-FOCUSED SI PROJECTS

Dominant Vendor Classes:

27%—Communications Providers

27%—Systems Suppliers

20%—Professional Services

Critical Technologies:

Network Design Tools

Communications Software & Hardware

Computing

Primary Alliances:

Communications Companies

Software Suppliers Co.

Hardware Manufacturers

Secondary Alliances:

Professional Services Companies

EMERGING VENDOR TRENDS
BY CLASS

Vendor Class	Additional Capabilities	Strategic Target
Professional Services	Data/Technology	Vertical Industry Niches
Software	Prof. Services (PS)	Applications Niches
Hardware	Software/PS	Full Range
Communications	Software/PS	Technology
Systems Suppliers	Data/Technology	Applications/ Technology

MAJOR COMPETITORS AND IBM

Digital Equipment Corporation

Systemhouse, Ltd

Arthur Andersen

IBM

DEC CSI CUSTOMER BASE

- About 150 CSI Projects

- Average Value: $1.0 Million

- Range: $0.1 Million to $15 Million

- Sample Projects
  - Firestone   CIM $21M/4
  - W. Transportation Co.   Inventory   Years
  - Bantam Doubleday Dell   Network $6M
    Publishing   Integration   >$3M

DEC CSI OBJECTIVES

- Penetrate New Accounts

- Sell DEC Hardware and Software

DEC CSI CAPABILITIES EVALUATION

(Vis-a-vis Competitors)

CSI Capability	Internal	External Alliances
1. Consulting	Good	Fair
2. Design/Integration	Good	None
3. Project Management	Average	Average
4. I.S. Hardware	Good	Fair
5. Communications Hardware	Fair	Fair
6. Software Development	Average	Good
7. Packaged Application Software	Average	Strong
8. Packaged Systems Software	Good	Average
9. Education, Training, & Documentation	Good	None
10. Network Management	Fair	None
11. Service & Repair	Good	None

DEC STRATEGIC PARTNERS IN CSI
(Limited Sample)

Category	Vendor(s)
Vertical Market/Sales Access	Morrison-Knudsen Engineering
Hardware Supplier	SHL Systemhouse Grumman Data Systems CSC CACI, Inc.
Technical Skills	Morrison-Knudsen Engineering
IS Hardware	Apple Computer

SUMMARY: DEC CSI EVALUATION

Capabilities:

- Nearly All CSI Skills In-house

- Integrated Processor Line

- Geographic Coverage

- Technical Skills ("Call DEC to Help
  Connect 2 IBM CPUs!")

- Network Management

Vulnerabilities:

- No Special Project Management Software

- Attitude

- Need More Alliances to Penetrate Verticals

- No Central CSI Organization to Override
  Matrix

INPUT

FUTURE DEC DIRECTIONS IN CSI

- Establish Separate CSI Organization

- Implement: DEC–Sell vs. Customer–Buy

- Develop More Industry-Specific
  Alliances for Application Software

- Acquire/Develop Proprietary Project
  Management Skills

- Increase International CSI Projects

SYSTEMHOUSE CSI CUSTOMER BASE

- Over 140 Installations in U.S. and Canada

- Average Value: $1 Million

- Range: $0.1 Million to $14 Million

- Sample Projects

- Los Angeles County	Criminal Justice System	$12 M
- Safeway	Customer Service System	Unknown
- Columbus and Franklin Public Library	Automated Cataloging and Circulation System	$1.2 M
- Royal Canadian Mounted Police	Data Network System	$13.2 M

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SYSTEMHOUSE CSI OBJECTIVES

Primary

- Focus on CSI/FSI, Not Software or Other Services

Secondary

- Bid for Larger CSI Projects

- Enter Specialized Niches, New Technologies, or Applications through Acquisition

- Increase Professional-Level Training to Keep Technical/Managerial Personnel

SYSTEMHOUSE CSI CAPABILITIES EVALUATION

(Vis-a-vis Competitors)

CSI Capability	Internal	External Alliances
1. Consulting	Average	None
2. Design/Integration	Strong	None
3. Project Management	Strong	None
4. IS Hardware	None	Very Strong
5. Communications Hardware	None	Strong
6. Software Development	Good	None
7. Packaged Applications Software	None	Average
8. Packaged Systems Software	None	Strong
9. Education, Training, and Documentation	Average	None
10. Network Management	None	Weak
11. Service and Repair	Average	None

SYSTEMHOUSE STRATEGIC PARTNERS IN CSI

Category	Vendor(s)	
IS Hardware	Tandem IBM Unisys DEC	H-P Amdahl Wang
Systems Software	Oracle (DBMS) Cognos (4GL) ADR (4GL) Relational Technologies (DBMS)	
Communications Hardware	Northern Telecom	

SUMMARY: SYSTEMHOUSE CSI EVALUATION

Capabilities:

- Focus Mainly on CSI
- Technical Knowledge of Many Hardware Systems
- Many Third-Party Alliances
- Excellent Project Management Methodology
- Emphasis on Customer Satisfaction

Vulnerabilities:

- No Network Management Capabilities
- Limited Geographic Presence in U.S. Market
- Not Well-Known
- Limited Experience in U.S. for Very Large CSI Projects

FUTURE SYSTEMHOUSE DIRECTIONS IN CSI

- Open More U.S. Regional Sales Offices

- Address Weakness in Network Management

- More Relationships with Third-Party Application Software Vendors in Target Industries

- Build on Existing Client Relationships

ARTHUR ANDERSEN CSI CUSTOMER BASE

- About 40 CSI Projects

- Average Value: $9 Million

- Ranges $2 Million to $80 Million

- Sample Projects:

- Electronics	Circuit Board Test & Assembly	$52 M
- Utility	On-Line Billing System	$30 M
- Food & Beverage	Integrated Sales/Production Planning	>$10 M
- Retail	Finance, Inventory, & Sales Analysis System	$10 M
- Financial	Loan Processing	$12 M

ARTHUR ANDERSEN CSI OBJECTIVES

Primary
- Be the Pre-eminent Provider to Top Organizations

- Provide End-to-End Business <u>Process</u> Solutions

- Provide Leading I.T. that Supports Business Solutions

- Treat Integrated Solution as a Natural Consequence of the Need to Remain Competitive

Secondary
- (Offensive) Account Control

- Build Follow-On Sales of Proprietary Software

AA & CO. CAPABILITIES EVALUATION

(Vis-a-Vis Competitors)

CSI Capability	Internal	External Alliances
1. Consulting	Good	Fair
2. Design/Integration	Fair	Average
3. Project Management	Good	None
4. I.S. Hardware	None	Good
5. Communications Hardware	None	Average
6. Software Development	Strong	None
7. Packaged Applications Software	Average	Good
8. Packaged Systems Software	Good	Strong
9. Education, Training & Documentation	Average	Average
10. Network Management	None	None
11. Service & Repair	Fair	None

ARTHUR ANDERSEN
STRATEGIC PARTNERS IN CSI
(Limited Sample)

Category	Vendor(s)
I.S. Hardware	IBM Hewlett-Packard Intel
Systems Software	UCCEL/CAI MSA McCormack & Dodge SAP GmbH IBM AION (Expert Systems)
Co-op Marketing	Aetna (Insurance System)
Accounting Software	TLB (Solomon III) Realworld Micro Associates

SUMMARY OF ARTHUR ANDERSEN CSI EVALUATION

Capabilities:

• Manage Client Process

• Very Large Project Management Skills & Experience

• Focus on "Professional Services" Activities

• Focused on 4 Primary Industries

• Emphasis on Process

Vulnerabilities:

• Engineering-Oriented Consulting

• Decentralized Partnership Organization

FUTURE ARTHUR ANDERSEN CSI DIRECTIONS

- Move CSI Responsibility from Local Profit Centers to National Level

- More Alliances, Joint Ventures for Target Markets

- Will Not Pre-empt Suppliers

- More Client Staff on "CSI Team"

IBM'S CSI CUSTOMER BASE

- Approximately 180 CSI Projects
- Average Value $6-7 Million
- Range $50K to $400M
- Sample Projects:

- Ford Motor	PC Network/Office Automation	$400M/5 Yrs.
- Hospital Corp of America	Administrative Network	$25M
- N. Carolina Board of Education	Administrative Network	$2.3 M
- United Airlines	Travel Agent Network	$250M/5 Yrs.

IBM CSI OBJECTIVES

IBM Response: "Become a Leader in CSI"

INPUT's View: • Account Control

• Product Distribution Channel

• "Bridge" to Software and Service Era

• Replicate Complex Solutions

IBM CSI CAPABILITIES EVALUATION
(Vis-A-Vis Competitors)

CSI Capabilities	Internal	External Alliances
1. Consulting	Good	Strong
2. Design/Integration	Average	Strong
3. Project Management	Average	Strong
4. IS Hardware	Strong	—
5. Communications Hardware	Good	Average (Improving)
6. Software Development	Average	Strong
7. Packaged Application Software	Fair	Strong
8. Packaged Systems Software	Good	Average
9. Education, Training Documentation	Strong	Fair
10. Network Management	Average	Fair
11. Service & Repair	Strong	Weak

INPUT

IBM CSI STRATEGIC ALLIANCES

1. Approximately 80 Active Alliances

2. Two Types:
   - IBM as Integrator (Looking for Partners)
   - IBM as Partner (Looking for an Integrator)

3. Commercial System Integrator Program–Selection Criteria
   - Application/Systems Expertise
   - End User Relationship
   - Project Management Skills
   - Legal/Contract Practices
   - Prior SI Experience
   - Motivation to Work with IBM

SUMMARY IBM CSI EVALUATION

Capabilities:
- Knowledge of CSI Opportunities
- Unlimited Capacity for Big Deals
- Attract Alliances/Partners
- Breadth of Internal Skills
- Ability to Invest
- Geographic Presence
- Ability to Set Standards

Vulnerabilities:
- Un-Integrated Product Line
- Limited Solution Choices
- Hardware/System Solution Mindset
- Branch Sales Mentality
- Professional Services Skills
- Pricing

FUTURE IBM DIRECTIONS IN CSI

- Shift to Active CSI Marketing
  - Customer Education
  - Seminars
  - Advanced Technology Centers
- Quasi-Packaged Solutions
- Strengthen Professional Services Skills
- Increasing International Content

MAJOR COMPETITORS

Summary

Primary SI Objective

IBM - Defensive Account Control

DEC - Offensive Account Control

Arthur Anderson - Offensive Account penetration

Systemhouse - Offensive Business Expansion

SI Market Focus

Diversified - IBM and DEC

Vertical - Arthur Anderson and Systemhouse

INPUT

PRICING GUIDELINES

- 50% of CSI Vendors Target Profit on All Elements

- Most Claim "Pricing Flexibility" in Creative
  Sense—Not Price Cutting

- Pricing Driven by Project Circumstances

INPUT

SHL MARGIN ANALYSIS BY SERVICE ELEMENT

Service Element	Reasonable Available Profit Margin (Percent)	Systemhouse Total Revenues (Percent)		
		1984	1986	1987
Contract Programming	5			
Cost Plus Software Development	7	60	30	25
Consulting	10			
Fixed Price Software Development	12			
Hardware Software Integration	20	40	70	75
Hardware Integration	10			
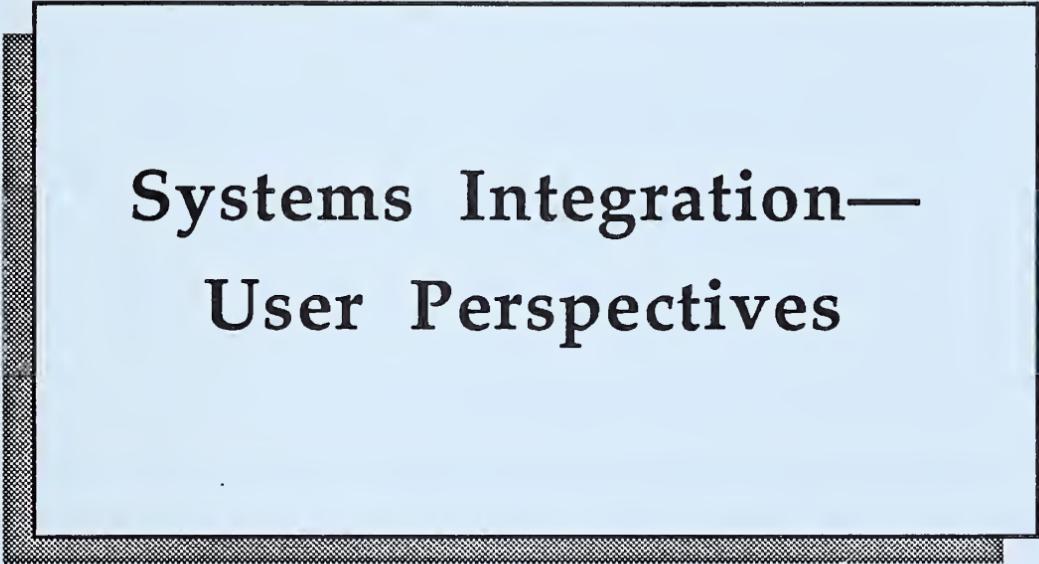
Systems Integration— User Perspectives

SYSTEMS INTEGRATION—USER PERSPECTIVES

Topics

- Changing Environment In Information Systems

- Systems Integration—A Response

- SI Projects—Structure/Composition

- Future Trends—Mix & Structure

- Buyer Issues—Vendor Selection

- Future User Perspectives

- Conclusions/Conjectures

INFORMATION SYSTEMS

Major Issues—1988

- Rising Management Expectations

- User Demands for Increasingly Complex Solutions

- Managing the Technology Investment

- Integration—Data/Applications/Technology

- "Mission Critical" Solutions

INFORMATION SYSTEMS

Management Focus

Area	Requirements
Integration	Applications/Data/Technology
Management of IS	Productivity of IS Simplification of Support User-Managed Development
Mission—Critical Systems	Support the Future Business Environment

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BLOCKING FACTORS

- Infrastructure Gridlock

- Lack of Qualified In-House Personnel

- Existing Applications Portfolio

INPUT

APPLICATION DEVELOPMENT—MAJOR PROJECTS

Source of Resources
1988 Survey
(Percent)

Source of Resources	Package Software	Custom Development	Total
Internal	22	78	56
Internal & External	52	48	44
Total	35	65	100

- Growing Trend Toward the Use of External Resources

- Growing Use of Applications Software in Projects Involving External Resources

SYSTEMS INTEGRATION—A RESPONSE

Blocking Factors Lead to Systems Integration
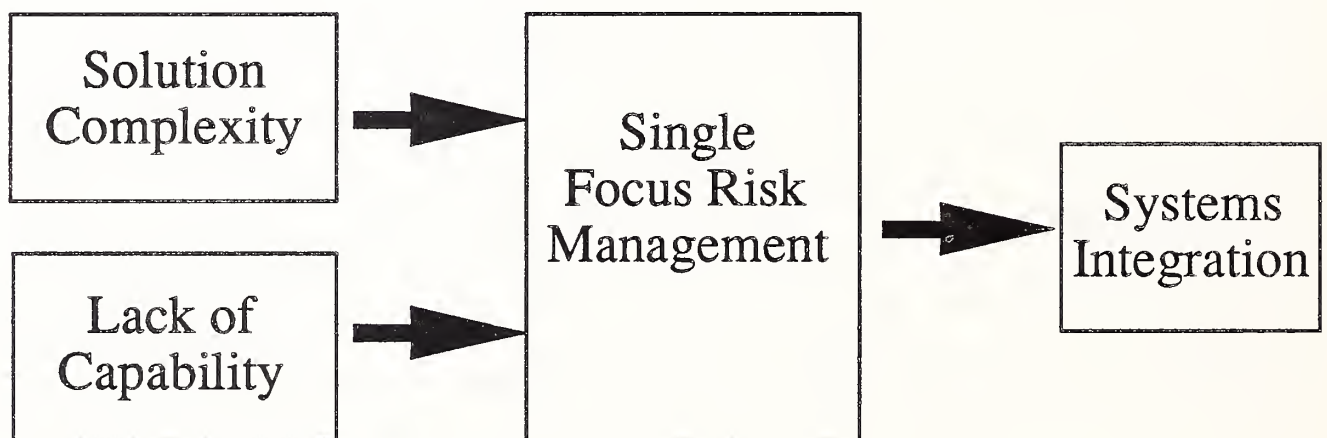
IS & USER MANAGEMENT VIEWPOINTS

Benefits of Systems Integration

- Rapid Response To Changing Business Needs

- Reduced Risk Of Systems Development

- "Acquire" Project Management Skills

- Integrate Fragmented Systems

- Use New Technology To Achieve Effective Solutions

- Acquire Industry Expertise

- Increase Project Management Focus

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CHARACTERISTICS OF SI PROJECTS

Federal and Commercial

- Project Characteristics:
  - Mission Critical
  - Multivendor In Nature
  - Complex

- Contractual Characteristics:
  - Single Source Accountability
  - Transfer Some Degree of Risk
    to the Vendor

COMMERCIAL VERSUS FEDERAL SYSTEMS INTEGRATION CHARACTERISTICS

Characteristics	Commercial	Federal
Customers		
Requirements Knowledge	Low	High
Technical Knowledge	Variable	High
Interface	Multiple	Single
Vendors		
Vertical Expertise	Preferred	Mandatory
Customer Base	Leverageable	Reference
Conceptual Strength	Required	Optional
Reputation	Media-Based	Historic
Business Conditions		
Competitive Bids	Optional	Required
Bid Complexity	Variable	High
Expenditure Commitment	Deferrable	Guaranteed
Risk Exposure	High	Contained
Contract Type	Fixed-Price	Combination*
Price Restrictions	Competitive	Ceilings
Bonuses	Unlikely	Award/Incentive
Penalties	Unlikely	Exception

*Federal Canadian Fixed Price

INPUT

SI PROJECT CLASSIFICATIONS

ZIBC-SI3-10
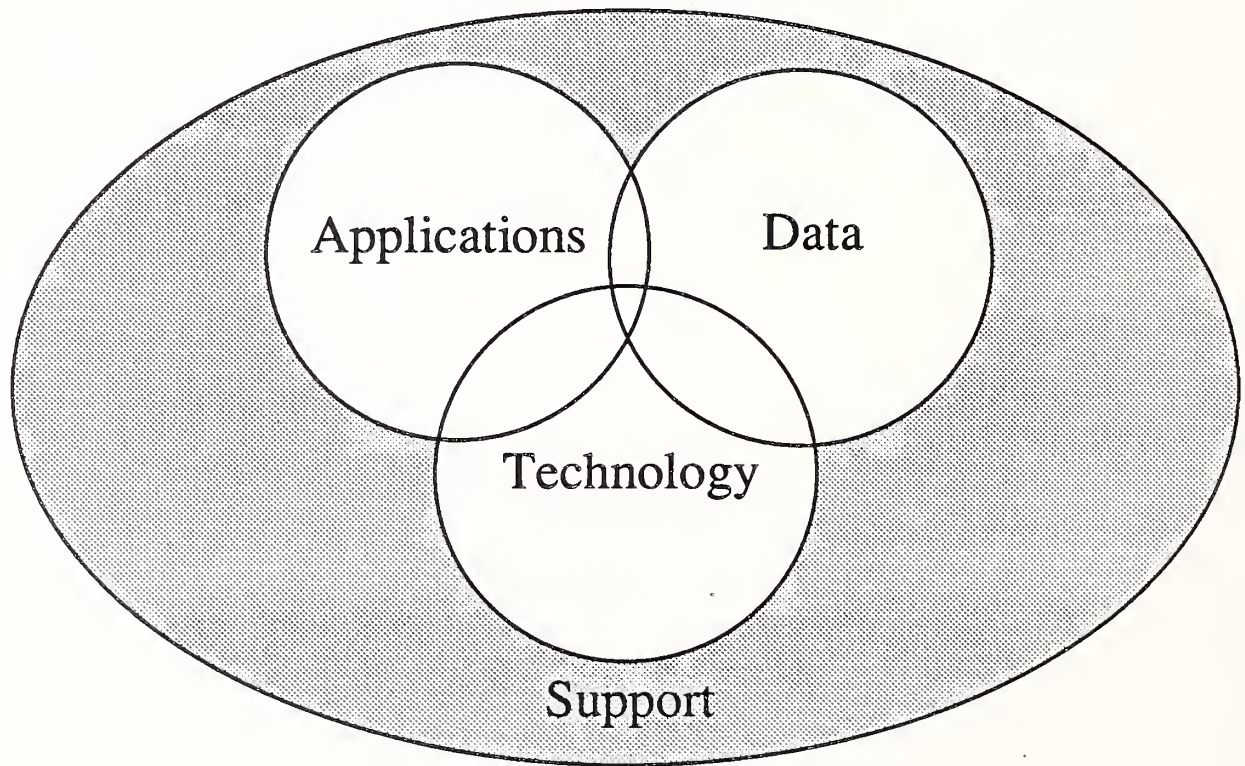
SI PROJECT CLASSIFICATIONS

- Applications Level
  - Focused on Specific Business Solutions
  - Driven by Executive/User Management
  - Short-Term Payout with High Visibility

- Data Level
  - Focused on Providing Data Infrastructure
  - Driven by IS or Division Management
  - Provides Platform for "Suites" of Applications

- Technology Level
  - Focused on Total Delivery Capability
  - Almost Universally IS Driven
  - Provides Standard Environment/Tools

INPUT

DISTRIBUTION OF PROJECTS BY CLASS

30%

60%

10%
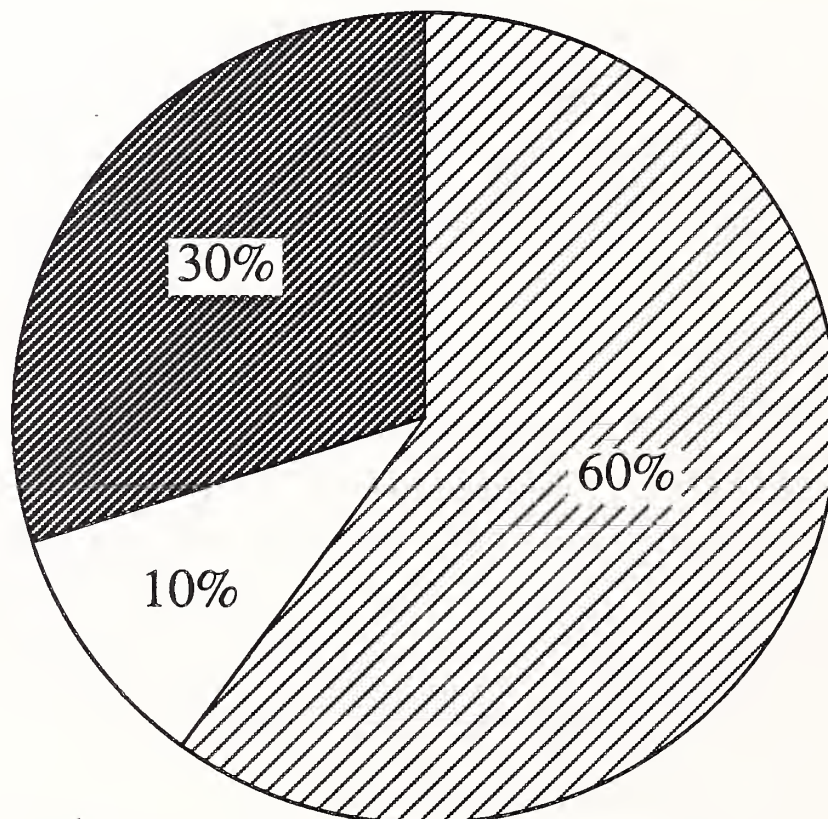
▨ Technology
▨ Applications
☐ Data

ZIBC-SI3-12

EXPENDITURES BY COMPONENT GROUP
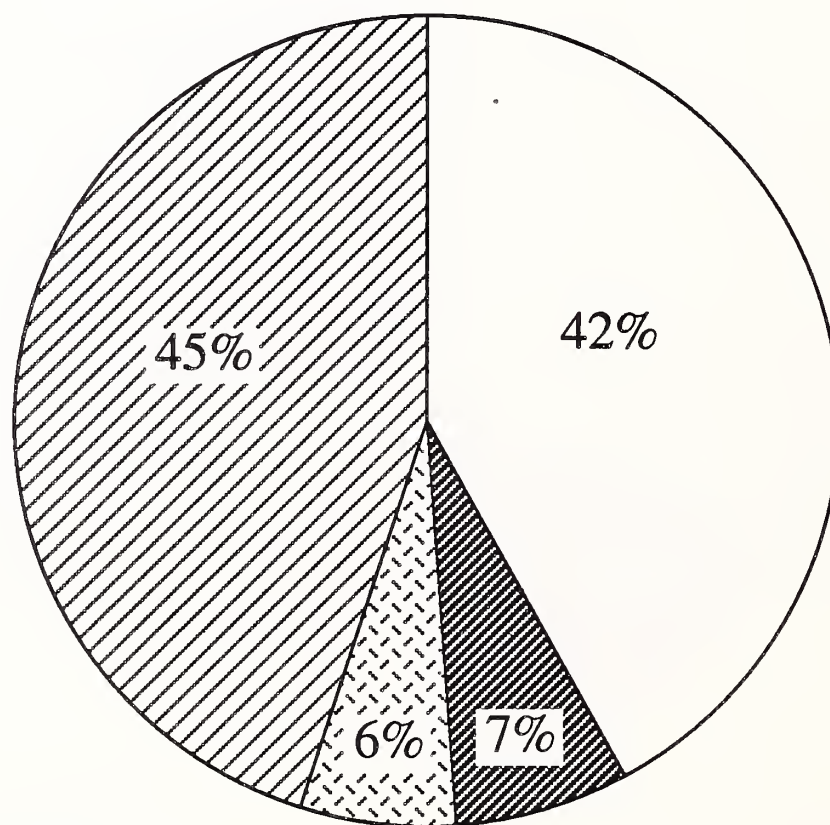
1987 Commercial Project Sample
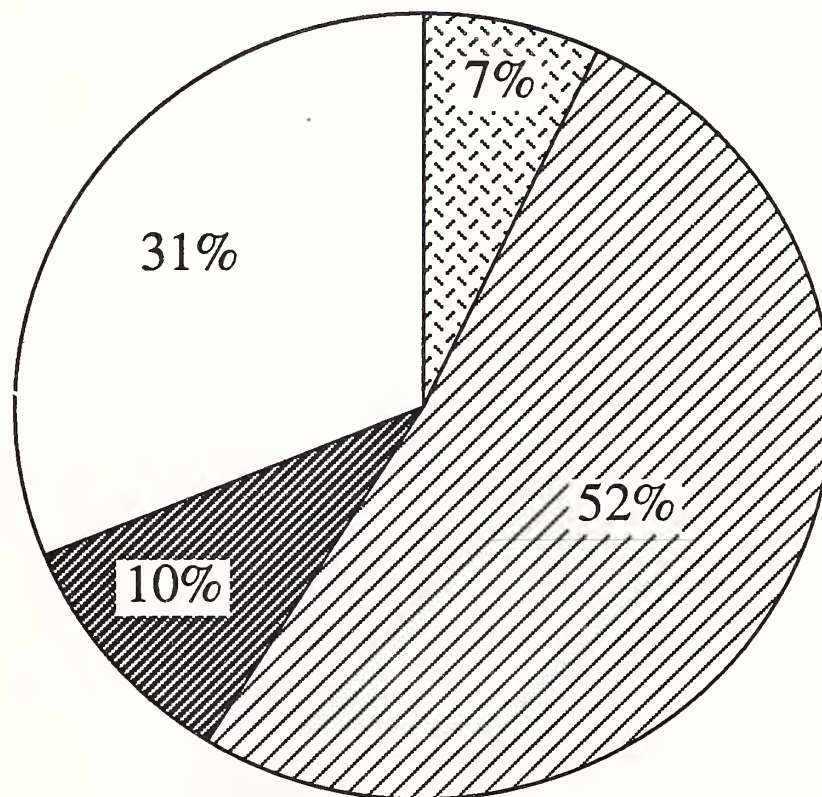
Legend:
- Other
- Hardware
- Software
- Professional Services

N=45 Projects
Revised 8/88

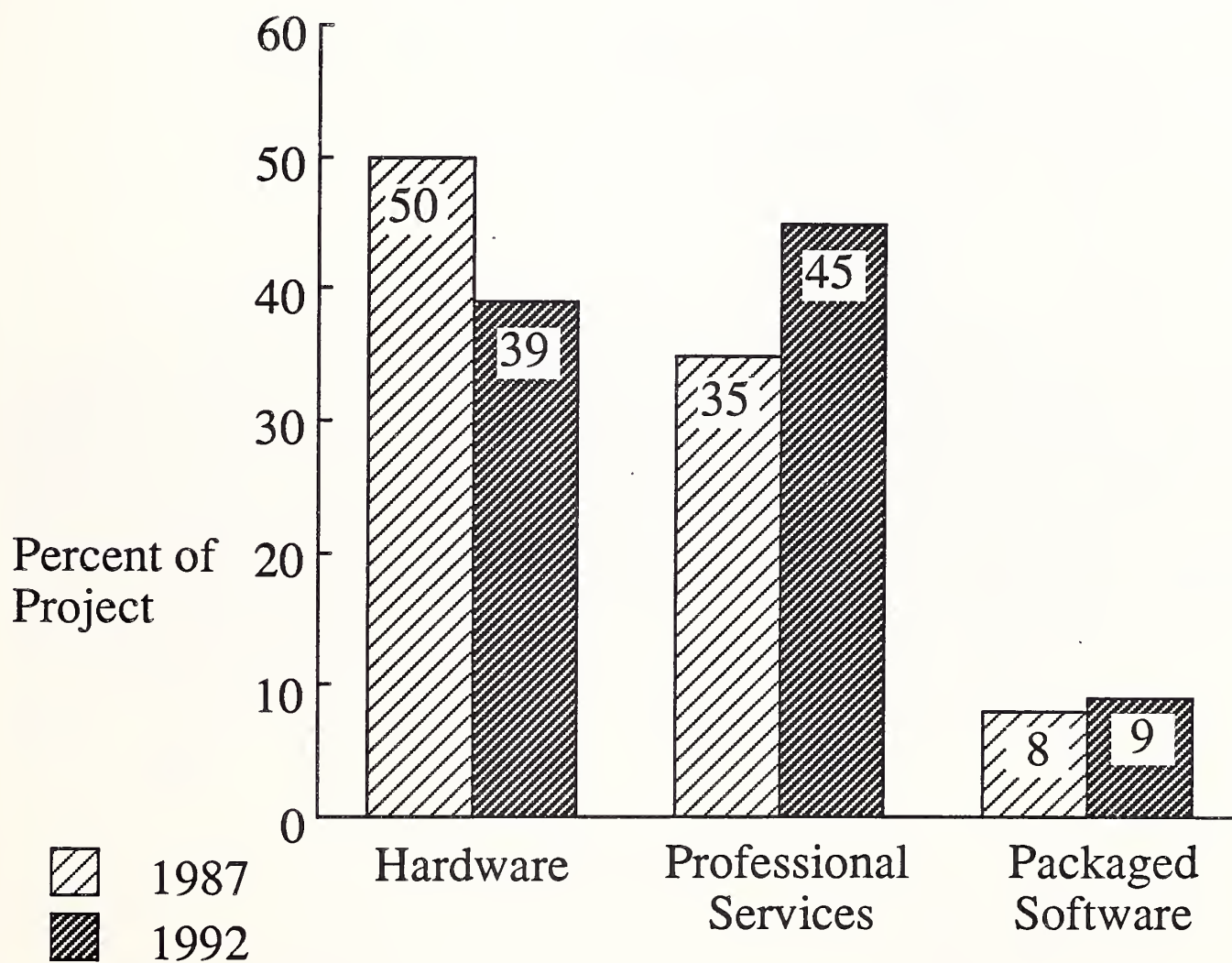# EXPENDITURES BY COMPONENT GROUP

1987 Federal Project Sample

45%

42%

6%

7%

▨ Other
▧ Hardware
▨ Software
☐ Professional Services

N=47 Projects
Revised 8/88

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TRENDS IN SI PROJECT COMPOSITION

Federal & Commercial
(Based on 1987 Forecast)

Percent of Project (bar chart):

Category	1987	1992
Hardware	50	39
Professional Services	35	45
Packaged Software	8	9

Legend:
◰ 1987
▨ 1992

INPUT

DISTRIBUTION OF PROJECTS BY VALUE

Federal and Commercial
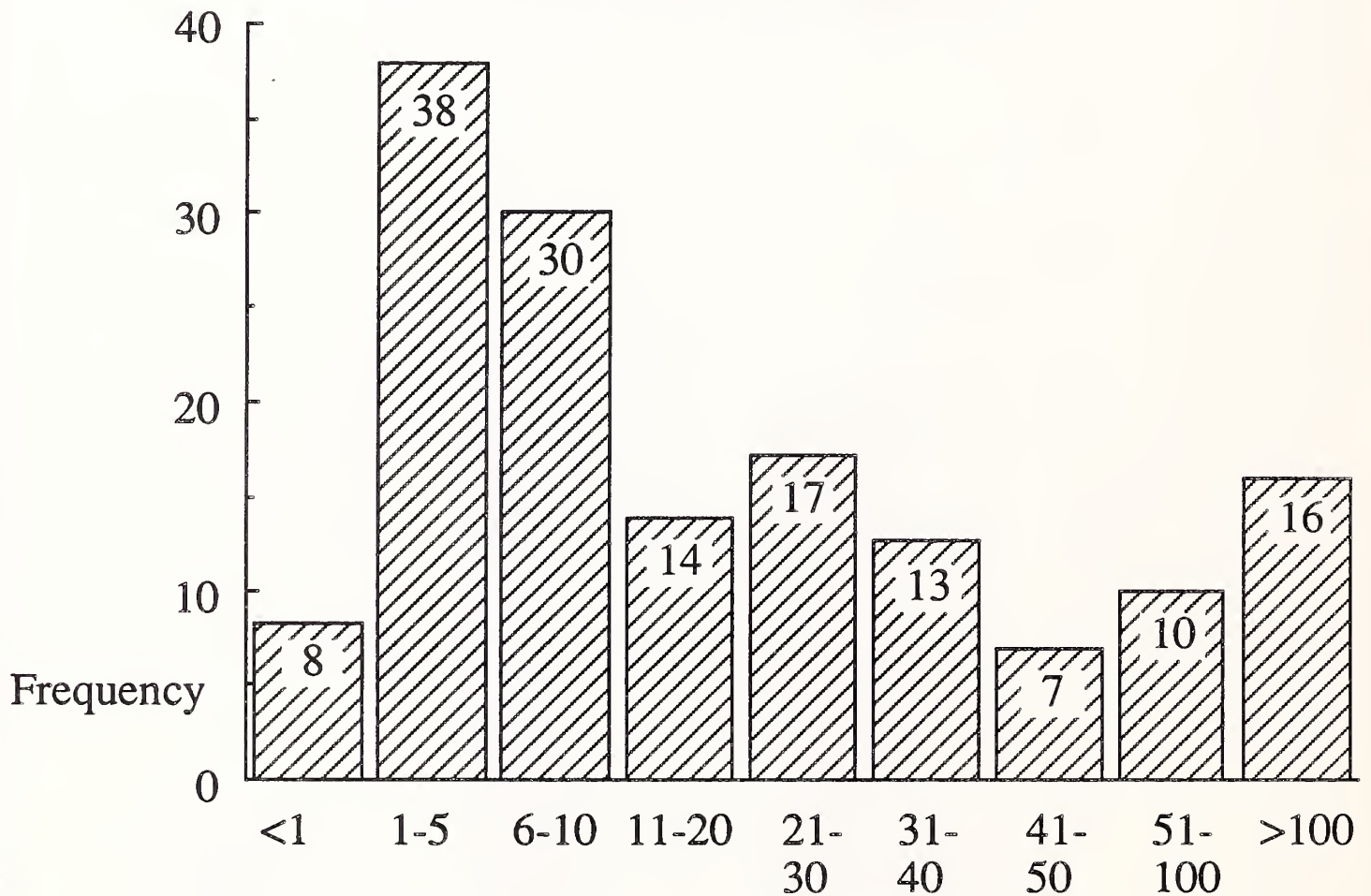
N = 153
Revised 7/88

INPUT

CHANGING MIX OF AVAILABLE PROJECTS

- INPUT Forecasts Over the Next Five Years
  - Decrease In Percentage Of *Technology* Projects
  - Continuous Increase In *Applications* SI Projects
  - Rapid Acceleration In *Data* Oriented Projects

- Key Factors Influencing the Mix
  - Decreasing Backlog - Hardware Integration
  - Increasing Compliance With Open Standards
  - Increased Dependencies On Relational Data Structures
  - Increasing Focus On Mission Critical Applications Systems
  - Dominance Of User Defined Requirements

BUYER ISSUES—VENDOR SELECTION

- Selection Criteria/Process

- Environmental/Organizational Impacts

- Project Management Issues

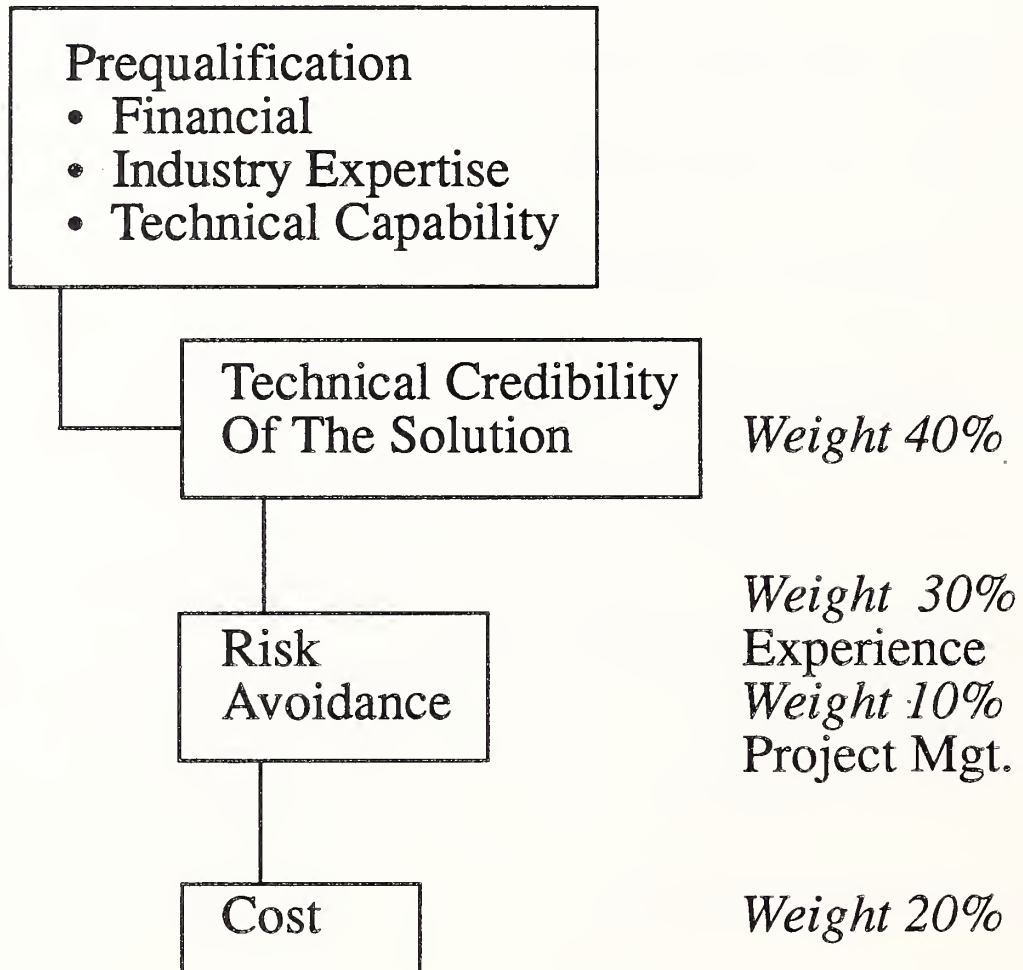- End User Perspectives

- Conclusions

VENDOR SELECTION CRITERIA

Type	Percent of Respondents
Industry Experience	86
Application Knowledge	86
Cost/Performance	86
SI Experience	79
Project Management Skills	64
Support Skills	64
Service Orientation	50
On-Site Visits	43
References	43
Alliances	21

VENDOR SELECTION PROCESS

Prequalification
- Financial
- Industry Expertise
- Technical Capability

Technical Credibility
Of The Solution

Weight 40%

Risk
Avoidance

Weight 30%
Experience
Weight 10%
Project Mgt.

Cost

Weight 20%

DURATION OF VENDOR SELECTION PHASE

Percent of Respondents (bar chart):

- <6 Months: 54
- 6-12 Months: 20
- 12-18 Months: 13
- Unknown: 13
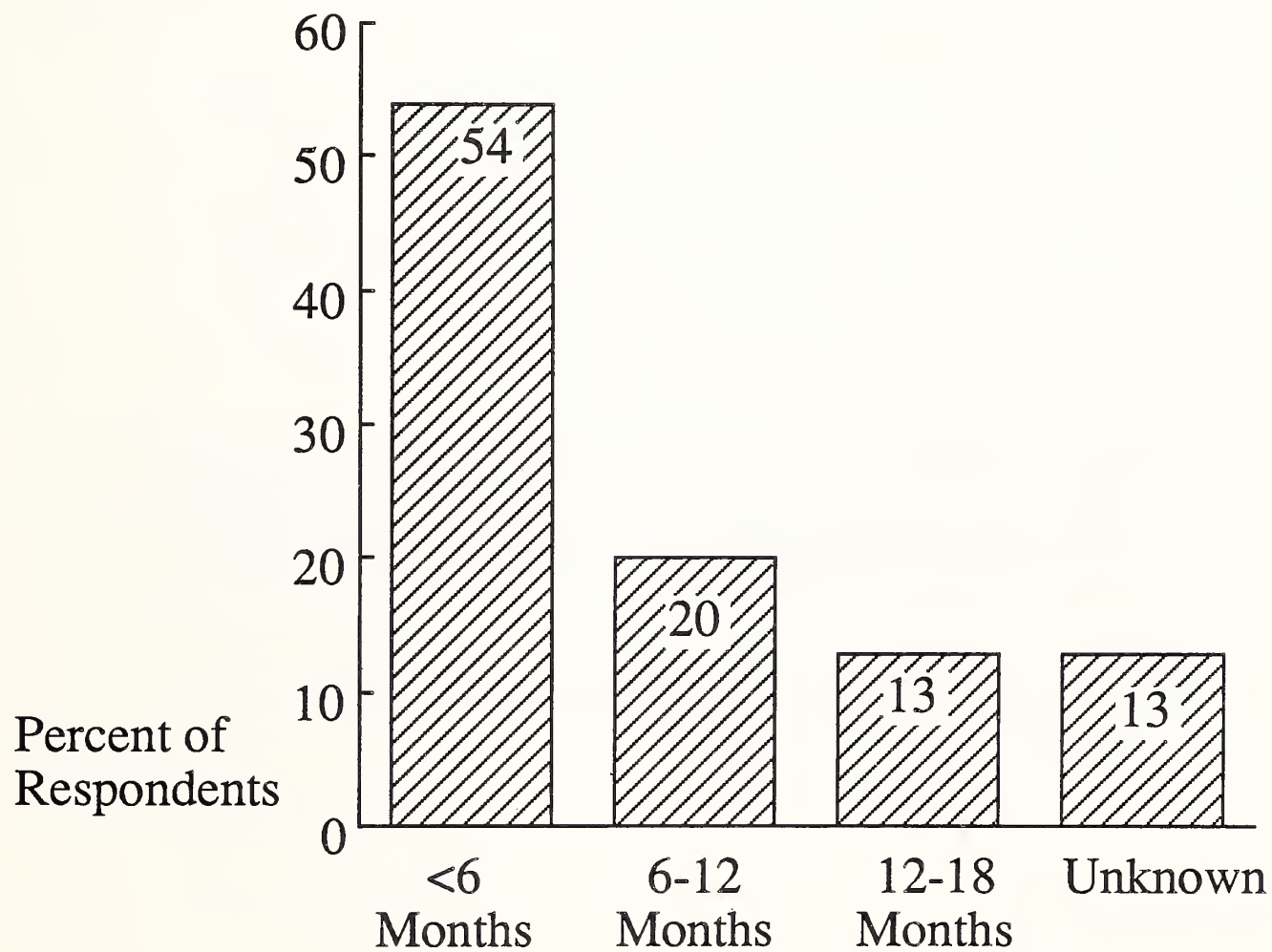
ENVIRONMENTAL & ORGANIZATIONAL IMPACT

- Open Communication Key to Success
  - Address Alternative Opinions
  - Opportunity for Second Guessing by IS
  - Involve the End User

- Manage the Interface with Project Staff
  - Appears to Be a Training Ground for Vendor Staff
  - Maintain Continuity of Vendor Project Staff

- Monitor Standards of Quality
  - Adopt Buyer's if Higher

PROJECT MANAGEMENT

- More Critical than the Ratings Indicate

- Continuity of Vendor Project Manager
    - The Good Ones Get Reassigned Too Soon
    - One Manager for the Life of the Project

- Managing the Subcontractors Key—Prime Vendor
  Must Keep Control
    - Buyer Tendency to Go around the Prime

- Use a Third Party as QA

- Keep the Users Involved—They Can Become the
  Vendor's Ally

END-USER PERSPECTIVE—
INVOLVEMENT

A "Single" Objective

⬇

The User Becomes the "Champion."

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CONCLUSIONS

Issues and Overall Success

Rank	High Success	Medium Success	Low Success
1	Environ. & Org. Impact	Bid Process	Acceptance Criteria
2	User Perspective	Environ & Org. Impact	Project Definition
3	Selection Criteria	Project Definition	Selection Criteria
4	Project Definition	User Perspective	Bid Process
5	Bid Process	Selection Criteria	Technology Review
6	Acceptance Criteria	Technology Review	Project Management
7	Project Management	Project Management	Environ. & Org. Impact
8	Technology Review	Acceptance Criteria	User Perspective

FUTURES

- Role of The End User
  - Controlling Strategic Information Systems Decisions
  - Doing the Majority of the Application Development
  - Managing the Processing at Tiers 2 and 3
  - Working from a Broad Base of Computing Experience

- Indicators of Major Change
  - Growing Use of Outsiders and Package Solutions
  - Distribution of Development as well as Processing
  - Emphasis on Standards
  - Focus on Top-Level Role and Priorities

FUTURES

Information Systems Responsibilities

- Providing Corporate Strategic Support

- Managing Architecture

- Application Planning versus Application Development

- Managing the Technology/Data

Information Systems Organization—1990s

- Smaller, More Flexible and Responsive

- Expert Based—Technology and Business

- Consultant Style—Information Engineers and Solution Builders

- Champion for Information Technology —An Internal "SI Competitor"

CONCLUSIONS/CONJECTURES

- Shifting Source Of Development Resources

    Inside ⟶ *Outside*

- On-Going Change In Buyer's Identity

    IS Management ⟶ *User*

- Changing Structure Of Project Composition

    Hardware ⟶ *Professional Services*

- Changing Mix Of Available Projects

    Technology ⟶ *Applications*